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(Entered as second class mail matter at the Postoffice at Medina, Ohio.)

THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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It will pay every beekeeper to
gather up all his old comb and
cappings and ship to us. We
charge 5c a pound for the wax
we render, and pay the highest
cash or trade prices.

The Fred W. Muth Co.

The firm the Busy Bees work for

204 Walnut Street . . . Cincinnati, Ohio

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NEW YORK.—All grades of comb honey are well cleaned up, with the exception of some odds and ends of poor quality, for which there is no demand to speak of. White honey will bring from 14 to 16, according to quality; lower grades from 11 to 13. Extracted honey is also well cleaned up, and very little stock available at this time. As to the conditions of the market in general, in comparison with last year at this time, prices are ruling considerably higher, and supplies are much less. Beeswax is in good demand, and prices rule from 40 to 42, according to quality. Hildreth & Segelken.
New York, April 17.

ALBANY.—Comb honey is very slow sale, and considerable stock is on hand. Quotations are nominal; for, rather than carry over the season we accept reasonable offers. Comb honey is looked upon as a luxury, and for that reason people don't buy freely, preferring staple foods. Prices of extracted honey are high. We quote No. 1 comb honey, 12 to 13; No. 2, 10 to 12. White extracted honey brings 10; light amber, in cans, 8½; amber, in cans, 8. Clean average yellow beeswax brings per lb. 35 to 36.

Albany, N. Y., April 18. H. R. Wright.

SYRACUSE.—The honey market at present here is very quiet—that is, there does not seem to be very much demand by retailers, as they seem to be well supplied; at the same time, the stocks in the hands of the wholesalers are generally low. We quote extra fancy, per case, \$4.32; fancy, \$3.84; No. 1, \$3.60; No. 2, \$3.36. White extracted honey brings 10 to 12½; light amber, in cans, 10.

Syracuse, N. Y., April 16. E. B. Ross.

ST. LOUIS.—We have a good demand for extracted honey in this market, and supplies are very light. Comb honey is moving very slowly, and our stock is sufficient for the little demand. We quote extra fancy comb honey, per case, \$3.00; fancy, \$2.85; No. 1, \$2.75; No. 2, \$2.50. White extracted honey brings 12c per lb.; light amber, in cans, 10; amber, in cans, 8. Clean average yellow beeswax brings 39½. R. Hartmann Produce Co.
St. Louis, Mo., April 16.

CHICAGO.—There is not much change in the market since our last quotations. Extracted honey still in demand, with the white selling at 10 to 11; ambers, 8 to 9. Comb honey, for which there is very little demand, brings 14 to 15. Beeswax, if clean, brings 33 to 35. R. A. Burnett & Co.
Chicago, Ill., April 17.

KANSAS CITY.—The honey market is firm here, and stocks are nearly all cleaned up. We quote fancy comb honey, per case, \$2.85; No. 1, \$2.75; No. 2, \$2.50. White extracted honey brings 10 to 12; light amber, in cans, 10; amber, in cans, 8. Clean average yellow beeswax brings 33.

C. C. Clemons Prod. Co.
Kansas City, Mo., April 16.

DENVER.—With the exception of a few small lots we are entirely cleaned up on comb honey, and we do not know of any more lots obtainable in this region. Extracted honey is more thoroly cleaned up than ever before. We quote to the jobbing trade as follows: Extra fancy comb honey, per case,

\$3.15; No. 1, \$2.92; No. 2, \$2.70; white extracted honey, per lb., 9½ to 9¾. Clean average yellow beeswax brings 33 in cash and 35 in trade, delivered here.

The Colorado Honey-producers' Association.
Denver, Col., April 17. F. Rauchfuss, Mgr.

PHILADELPHIA.—We are entirely cleaned up on all stocks of comb honey except a few lines of fancy comb which are now moving slowly. Our observations show this to be much the same throughout the country. We quote extra fancy comb honey, per case of 24 sections, 18; No. 1 and No. 2, have none to offer; would be in the market to buy at the right price. Let us know what you have to offer, and price. Clean average yellow beeswax brings 36 to 38. Chas. Munder.

Philadelphia, Pa., April 16.

PITTSBURG.—Demand is extremely light; some sizes in glass fairly cleaned up. Generally speaking, trade is fully supplied with all grades. We quote extra fancy comb honey, per case, \$3.75 to \$3.90; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.75; No. 1 buckwheat, \$3.40 to \$3.50.

Pittsburg, Pa., April 17. W. E. Osborn Co.

CLEVELAND.—Very little stock is in market. Demand continues light, but price is steady. We quote fancy comb honey at \$3.75 to \$4.00; No. 1, \$3.50 to \$3.60.

Cleveland, O., April 16. C. Chandler's Sons.

SAN FRANCISCO.—Extracted honey, crop of 1916, has ceased coming into this market from producers, as stocks are practically cleaned up. Honey jobbers, too, have sold out pretty well, altho some bottlers and preserving companies report some stock on hand, and the demand is slackening owing to present high prices. Comb honey is cleaning up, but at no advance over prices in force during the winter. We quote extra fancy comb honey, per case, \$3.00; fancy, \$2.75 to \$2.85.

Leutzing & Lane.

San Francisco, Cal., April 12.

LOS ANGELES.—Market is entirely bare of bulk extracted; demand active. New crop will begin to appear within ten days. No changes in comb honey. Considerable stock is held over by dealers and producers. All beeswax reserved for foundation. No considerable stock is on this market—average amount coming in. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. Geo. L. Emerson.

Los Angeles, Cal., April 12.

PHOENIX.—Our market has been one-sided—all buyers and no sellers—as the crop was sold last fall. Never in the history of Salt River Valley has there been as great a demand. The new crop is promising. Mesquite extracting will commence within a few days with favorable weather. Many bees died of starvation, owing to cold and windy weather. White extracted honey brings 8 to 8½ per lb. Clean average yellow beeswax brings 33.

Phoenix, Ariz., April 14. Wm. Lossing.

PORTLAND.—Comb honey is in fair demand only; stocks are being closed out slowly, at low prices. Extracted honey is in good demand, with stocks entirely out of producers' hands. Jobbers' stocks are getting down low, and only enough is in sight barely to supply the local demand. Prospects for the coming season are good. Bees wintered well. We quote extra fancy comb honey, per case, \$3.25; fancy, \$3.00; No. 1, \$2.50 to \$2.75; No. 2, \$2.25 to \$2.50. White extracted honey brings 9; light amber, in cans, 8; amber, in cans, 7. Clean average yellow beeswax brings 25 to 26. Market is bare.

Portland, Ore., April 11. Pacific Honey Co.

TEXAS.—Mr. F. L. Hawkins, of the Department of Agriculture at Washington, also the President and Secretary of the Texas Honey-producers' Association, met with a number of beekeepers at Uvalde today;

other producing counties were also represented. On discussing the honey situation it was decided that 12 cts. for bulk comb and 10 cts. for extracted was none too high. A canvass of beekeepers established the fact that there is no honey now in this section. Wax brings 30 cts. up, according to grade and quantity.

Sabinal, Tex., April 12.

J. A. Simmons.

HAMILTON.—Our stock of 60-lb. tins is all sold; also our 5 and 10 lb. tins. Jars of all sizes, still a good stock on hand, selling slow. Comb honey, fair stock is going slow. Larger packages have been most in demand. We quote extra fancy comb honey, per case, \$2.50; fancy, \$2.25; white extracted honey, none; amber in cans, 11 cts.

F. W. Fearman Co., Ltd.

Hamilton, Ont., April 16. McNab Street Branch.

MONTREAL.—Honey stocks are less than a year ago. Demand for the next two or three months will be limited. We quote extra fancy comb honey, per case, 18; fancy, 17; No. 1, 16; No. 2, 14. White extracted honey brings 14; light amber, in cans, 13; in barrels, 12; amber, in cans, 12; in barrels, 11. Montreal, Que., April 17. Gunn, Langlois & Co.

TORONTO.—Honey is practically out of the producers' hands at present. There appears to be a scarcity of clover honey on this market and prices are showing a slightly advancing tendency on last month's quotations.

Toronto, Ont., April 17. Eby-Blain, Limited.

LIVERPOOL.—Honey is in good demand, and dearer; 504 packages offered at auction, and 418 sold at \$1.20 per cwt. advance. We quote Jamaica, setting amber to palish, \$23.40 per cwt.; liquid darkish, \$21.60 to \$23.32; darkish to amber setting, \$22.68 to \$23.16; Cuban, setting amber to palish, \$22.80 to \$24.00; liquid to setting dark, \$22.08 to \$22.56; Haiti, setting dark amber to palish, \$20.88 to \$23.28; Chilian, pile 3, \$22.20 per cwt. Beeswax is dearer; much wanted at \$44.94 per cwt. of West Indian, good bright; Jamaica, dark to good pale, \$46.14 to \$42.94 per cwt.

Liverpool, Eng., March 27.

Taylor & Co.

FLORIDA.—Demand is good. As to supply I am just starting extracting, but outlook is good for a good crop; quality is excellent. White extracted honey brings 8 1/3; light amber, in barrels, 7 1/2; amber, in barrels, 7. Clean average yellow beeswax brings 35.

S. S. Alderman.

Wewahitchka, Fla., April 16.

CUBA.—Light amber extracted honey in barrels brings 75 cts.; amber, in barrels, 75. Clean average yellow beeswax brings 39.

Adolfo Marzol.

Matanzas, Cuba, April 13.

MEDINA.—Very little change on extracted honey during the last thirty days. Market is practically bare, while the comb-honey situation shows no change from last month.

Medina, O., April 24.

The A. I. Root Co.

SWARMING CONTROLLED

If interested, address Charles Thompson,
Marion, Iowa, for information.

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NO matter where you live you can deposit your savings with this bank --- established a quarter of a century ago --- where your money is absolutely safe and earns 4 per cent compound interest.

Deposits may be safely sent by express or postal money order, check, draft, or the currency by registered mail. We invite deposits of One Dollar and upwards.

Write for our free booklet explaining our system of banking BY MAIL.

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E. R. ROOT, Vice-Pres.
E. B. SPITZER, Cashier

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Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Wanted: Old Combs and Slumgum

For lowest freight rate bill as "beeswax refuse." Our steam process removes every ounce of wax. We render on shares.
Superior Honey Company, Ogden, Utah

MICHIGAN BEEKEEPERS

MAY---the month of final preparation. To secure the maximum crop, BE READY FOR IT. Anticipate your needs. Get the new equipment now, and make it Root equipment. Success comes easier with good goods. . Beeswax wanted at the highest market price, cash or trade. Send for catalog of berry-baskets, or of Root Quality bee supplies.

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510 Cedar Street, North

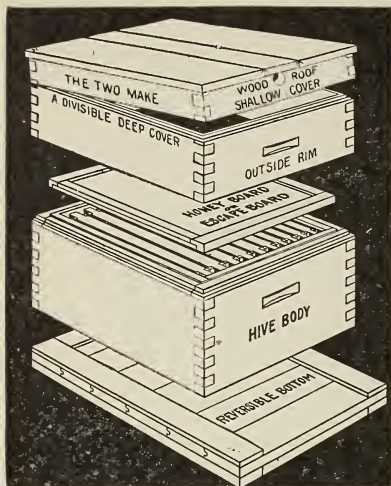
Headquarters for Bee Supplies

Root's Goods at Factory Prices
for Ohio, Kentucky, Tennessee

We carry a large and complete stock of bee supplies, and are prepared to give you prompt service. . We have just received several carloads of new fresh supplies. . . Send for our catalog.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

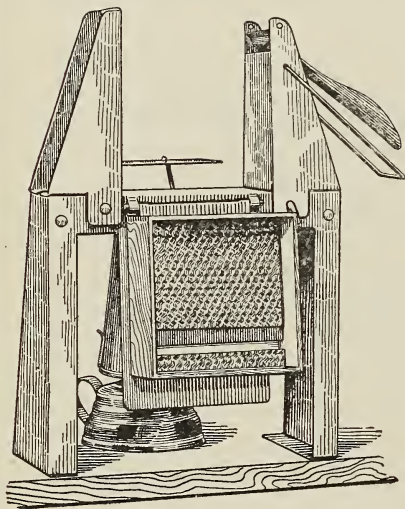


Protection Hives

Price for 5 hives with outside rims \$13.75; without rims, \$12.00, F. O. B. Grand Rapids, Mich. Delivered to any station in the U. S. A. east of the Mississippi and north of the Ohio Rivers, with outside rims, \$15.00.

They are double wall, with air spaces or packing as you may prefer. A large percentage of our customers use them with air spaces and no packing. Packed hives will not last as long as those that are not, as packing has a tendency to absorb moisture. They have $\frac{3}{4}$ material in the outer wall, which makes them substantial. The inner walls are of $\frac{3}{4}$ material.

If you have ever had occasion to spend any time in a building single boarded under cold weather you can appreciate the importance of double walls. Great quantities of fuel are required to keep the stove red hot, while you roast on one side and freeze on the other. Double walls in hives are equally important. Send for catalog and special circulars, showing large illustrations.



Section-fixer

A combined section press and foundation-fastener of pressed-steel construction. It folds the section and puts in top and bottom starters all at one handling, thus saving a great amount of labor. With top and bottom starters the comb is firmly attached to all four sides — a requirement to grade fancy. Increase the value of your crop by this method. The sale of Section Fixers has had a great increase this year. This is conclusive proof that they are giving universal satisfaction. They are the finest thing on the market for the purpose and have given the greatest of satisfaction in every case, when properly operated. We have hundreds of testimonials on file.

Price with lamp, \$2.75. Shipping weight 5 lbs. Postage extra. Send for special circular fully describing this machine.

Tin Honey-packages

Do not wait longer but secure your honey-packages at once. The tin-plate situation is becoming more serious from day to day. Freight traffic is slow and uncertain. We placed our order for tin plate for our 1918 Bee Smoker Trade some time before a state of war was declared. We dared not wait longer for fear we could not secure it at all. Our three-year contract on tin honey-packages is still being honored and runs until Jan. 1st, 1919. We are saving money for car load buyers and others of smaller lots. Send us a list of your requirements. Do not delay. Act at once.

60-pound cans, one and two in a case.

FRICION-TOP TINS.

	2 lb. cans	2 ½ lb. cans	3 lb. cans	5 lb. pails	10 lb. pails
Cases holding	24	24	...	12	6
Crates holding	50	50
Crates holding	100	...	100	100	100
Crates holding	603	450	...	203	113

A. G. Woodman Co., Grand Rapids, Michigan

PREPARED

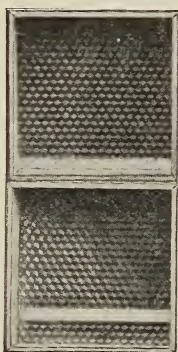
Yes or No?

We have been asking you to look ahead for your needs this season. Some have done so, but there are a few we have not heard from.

Remember

If you order goods by freight when you need them badly you may be disappointed in not receiving them in time. Freight for a year or more has been very slow. Make out an order now after you have decided what you need, and send to

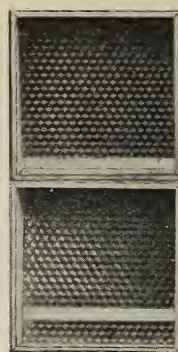
F. A. Salisbury, Syracuse, New York
1631 West Genesee St.



If you use full sheets of foundation in your sections and frames, you are wise, but --- you are wiser if you insist on using ---

Dadant's Foundation

Why? Read the following:



Dadant & Sons, Hamilton, Illinois.

Dear Sirs:—Looking the accounts over we still have 9 pounds of beeswax to our credit. Could you hold this, as we intend to ship more wax before next season? We will use DADANT'S FOUNDATION only, as it has proved BEST by TEST.

Hebron, Ind., Nov. 16, 1914.

Yours very truly,
Van Wyngarden Bros.

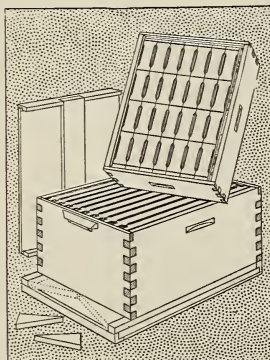
We have many customers who tell us the same thing. Try it yourself and be convinced.

For making Dadant's Foundation we need immense quantities of beeswax

When you have some to offer, drop us a line and get our prices. We buy at all times and pay highest prices.

BEESWAX WORKED into foundation at reasonable prices. OLD COMBS rendered into beeswax on shares or for cash. Let us do all this work for you and save you time and money.

Dadant & Sons, Hamilton, Illinois

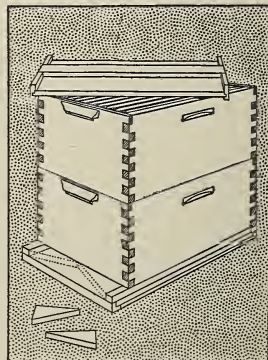


BEE SUPPLIES

We have everything in the supply line and keep an immense stock on hand so as to fill orders promptly.

OUR CATALOG—Lists everything of practical value to the beekeeper. Several new articles listed this year.

Drop us a card and get a copy.



GLEANINGS IN BEE CULTURE

MAY, 1917



EDITORIAL

JUST AT THE HOUR of going to press, GLEANINGS has received news of a conference held April



*AN APPEAL
TO ALL
BEEKEEPERS*

23 at the Bee Culture Laboratory at Drummond, Md., called

ed by Dr. E. F. Phillips, of the Office of Bee Culture Investigations, Bureau of Entomology. The purpose of the conference was to consider the problems immediately confronting beekeeping in the war crisis. Invitations to this conference were telegraphed to editors of bee journals east of the Mississippi, to supply manufacturers and teachers of beekeeping in the same territory. The meeting was conducted by Prof. Francis Jager, president of the National Beekeepers' Association, and Dr. Burton N. Gates, of the Massachusetts Agricultural College acted as secretary. A number of eastern men prominent in the beekeeping profession and supply business responded to the hurried invitation to this conference. Among others who addressed the conference were Dr. L. O. Howard, chief of the Bureau of Entomology, and J. W. Fisher, of the Office of Markets.

While we have received a comparatively complete report of the doings of the conference, we are unable to do more at press hour than to summarize these doings as follows:

Committees were appointed for the following purposes: (1) To obtain an increased allotment of funds for the Office of Bee Culture Investigations for this emergency; (2) To ascertain the available supply of honey-containers and to urge the commission which is dealing with this general subject to include honey-containers in their plans; (3) To learn what markets are available for exports of honey; (4) To ascertain the supply of paper containers in case tin or glass cannot be had; (5) To request the postal authorities to permit the mailing of combless packages of bees. These committees began work promptly, and

their reports will be issued as quickly as possible.

The conference drew up a series of recommendations, addressed "To the Beekeepers of the United States." The introduction to these recommendations notes the fact that the present war crisis of the nation has brought the supreme test of the usefulness of the beekeeping industry, and demands the fulfilment of its highest obligation. The specific recommendations made urge the following efforts:

1. Producers to increase production to the greatest possible extent, giving preference to extracted honey, because in that way the total honey supply may be more greatly increased. (Two comb-honey supers may easily be converted into a deep extracting-super or a hive body.)

2. Inspectors of apiaries to emphasize educational work, even to take precedence over the inspection of individual colonies.

3. Beekeepers to organize county or local associations for the rapid dissemination of information, these to be affiliated with a state association, which in turn should join a nation-wide organization; the holding of field meetings in early summer to give practical information on manipulations; keepers in the producing centers which are far from markets to organize practicable co-operative buying and selling associations.

4. Bee-journals and agricultural press to co-operate in every way in this movement, and especially in securing and printing the most reliable market quotations and crop estimates possible.

5. The teachers of beekeeping and extension workers to increase their activities.

6. To urge the government agencies to give preference to beekeepers' supplies, bees, honey, etc., in freight shipments.

7. The manufacturers of beekeeping supplies to continue their present policy of operating their plants at their maximum physical capacity in order that supplies for the 1917 crop may be available, and to expedite shipments.

8. Agents and dealers in supplies to order immediately in order to anticipate their season's needs and to ship to beekeepers goods with utmost promptness.

9. Producers to order necessary supplies early, and to order standard goods to save time at the manufacturing plants.

10. Beekeepers to supply themselves with a liberal quantity of containers immediately in order that the present seeming shortage in tin and glass ware may not prevent the sale of their crops.

11. Every beekeeper to sell as much of his honey as possible on home markets.

12. Those who sell honey at wholesale not to sell their honey until they have full information concerning the needs of wholesale markets.

These recommendations conclude with the following appeal: "We call upon all beekeepers, and all those whose chief interest is the upbuilding of the beekeeping industry, to redouble their efforts to increase the importance of beekeeping as an agricultural industry which conserves a valuable national resource, and which produces a non-perishable, wholesome food."



WE CANNOT URGE too strongly the largest possible production of honey this year. It is the



A CALL FOR HELP TO BEEKEEPERS

every beekeeper in the land to attend the nation-wide call for increasing and conserving the food resources of the country—and at the same time he will be doing himself an excellent turn. "The rapidity with which the unusually large honey crop of last year was sold," says Dr. E. F. Phillips, "does not indicate danger from overproduction, even in times of peace, and there is every reason to expect that 1917 will see a good honey market."

Dr. Phillips, of the Bureau of Entomology, Washington, D. C., has just issued a public letter on "The Necessity for Increasing the Honey Crop," in which this timely advice is given beekeepers:

Beekeepers should do their utmost this year to increase production, not only by increasing the number of colonies in so far as it can be done without decreasing the crop, but especially by giving their bees the best of attention. Those who have their bees in box hives are being urged, so far as they can be reached, to adopt the modern equipment, but this will be valueless unless they at the same time adopt modern practices. Natural swarming should be curbed as much as possible, and increase should usually be made by artificial division. The crop may often be materially increased by giving the bees plenty of room for storage, for gather-

ing often ceases when bees are overcrowded. In this regard many commercial beekeepers are not doing their best. Those owning only a few colonies may profitably increase the number of their colonies, but they should remember that, without intelligent care, bees will not be profitable, except in rare seasons. The tendency at present is rightly to encourage the professional beekeeper, who knows how to get the most from his bees. The professional beekeeper, and those who wish to enter this class, should at once consider the establishment of additional apiaries, care being exercised not to overstock any one locality. To those who have not begun out-apiary management, this year promises to be a good time to make the start.

The beekeepers of America will hear the special call directed to them in this year of war and world-wide want, and will not fail. Of this we are certain.



UNDER THIS TITLE, Mr. F. R. Beuhne, Government Apiculturist of Victoria, re-



NOSEMA APIS IN VICTORIA

views the work done in a study of an adult disease of bees.

The paper appears in the Journal of Agriculture of the Department of Agriculture of Victoria for last October.

The discovery of *Nosema apis* by Professor Zander and the work done on the organism by the English investigators naturally caused the Australian beekeepers to wonder whether the death of adult bees, which they observed in 1909, was due to this organism. The Government Biologist, Mr. W. Laidlaw, found the organism and this caused some alarm. However, it was found that the protozoon was present in 86 apiaries out of 88, from which bees were examined, and in many of these apiaries no dwindling of colonies was observed. This is also known to be true in the United States. This indicates either that the English investigators were mistaken, that Australian and American bees enjoy an immunity to the organism, or that climatic differences account for the variations observed. Recent work by Rennie and Anderson in Scotland throw considerable doubt on the conclusions of the English investigators.

In this paper, Mr. Beuhne outlines experiments conducted in 1915-16, in which nineteen colonies containing *Nosema apis* were removed to a new location, while five infected colonies were left behind. Of the five, two dwindled away and the others freed themselves of *Nosema*. Of the nineteen, two were accidentally lost thru robbing, and the last examination showed *Nosema* in only one colony. One of the nineteen died of starvation. "Even badly affected colonies may completely recover under favorable

conditions; but one colony retained the parasite thruout, and may be considered a "disease carrier." Mr. Beuhne advises certain precautions to help bees get rid of the parasite. He evidently accepts in general the conclusion that "Isle of Wight disease" is serious in England and that it is due to *Nosema apis*. Of the latter there may be some question.

According to these results, there is either something wrong in the results of the English investigators or *Nosema apis* behaves differently in England. Since there seems no immediate danger of an epidemic of disease in America, it may be best for American beekeepers to wait for somebody to settle some of the questions yet unsolved before they begin to worry.



THERE CAN BE no doubt that there will be a sugar shortage in the United States in the near future.



SUGAR SHORTAGE AND HONEY PRODUCTION

The price has already advanced greatly, and it is apparent that the two Ameri-

cas will have to furnish the food for Europe as long as the great war lasts and for some time afterward. The price of everything is climbing, including honey. All indications show that it will be impossible to have an overproduction of extracted honey next year. The market has been cleaned up for extracted in bulk; and it is apparent that next year's crop will be snapped up at good prices. What those prices will be, it is too early to predict.

The slogan has gone out that every spot of land should be utilized for the growing of food crops. In the same way every bit of unoccupied bee territory should be utilized.

If possible, the crop of extracted should be greatly increased. Even tho the amount should exceed that of 1916 (and that was large), there cannot be an overproduction. We are advised that the Bureau of Entomology appreciates the situation, and proposes to carry on a campaign, by means of circular letters and otherwise, to increase at once the crop of honey in the United States.



IT IS APPARENT that there has been an enormous demand for bees in package form.

BIG DEMAND FOR COMB- LESS BEES

Many of our advertisers in the South are booked up to the first of June, and some of them are working al-

most day and night to fill their orders. The backward spring has hit some of the package men pretty hard. Weak colonies have dwindled away and brood has been chilled. The result is that some of the breeders have had to cancel orders, and not a few are returning money sent for bees.

We wish to suggest that those who have ordered bees in the pound form be as lenient with their Southern breeders as possible. We chance to know that some (and perhaps all of them) are doing their very best to fill orders on schedule time. While most of them will succeed, others will be delayed.

It will do their customers of the North no good to cancel their orders if they cannot get prompt delivery, for in so doing they will be at the bottom of the list when they place their orders with other breeders.

The backward spring has been hard on bees in the North in some localities, and it is apparent that Northern beekeepers have placed orders with Southern men for bees in package form to build up some of their nuclei. But we fear that in some cases the bees will come too late to do much good this season.



THERE ARE LYING on our table two new books from the *American Bee Journal*.

The first is entitled *TWO NEW BOOKS FROM THE AMERICAN BEE JOURNAL* "One Thousand Answers to Beekeeping Questions," being answers by Dr. C. C. Miller to questions

asked in the *American Bee Journal* and compiled into book form by Mr. M. G. Dadant. It is gotten out in the convenient form of an encyclopedia—that is, the questions are arranged in alphabetical order. The first question relates to Absconding, and the last to Yields of Honey. The fact that the answers are by Dr. Miller is a sufficient guarantee that they are likewise orthodox.

The second book is a revision of a former edition entitled "New Beekeeping," by C. P. Dadant, bound in cloth. It appears to be, just as the author says, largely rewritten. The first edition was based on Newman's book, "Bees and Honey." The last edition appears to be wholly the work of C. P. Dadant, the editor of the *American Bee Journal*. It is well gotten up and will be an excellent introduction to the larger work, Dadant-Langstroth Revised, by the same author.

THERE is a man in the state of New York engaged in the culture of bees and the growing of fruit who has been astonishing the

BEES AND FRUIT TOGETHER

A New-Yorker who had Such Remarkable Yields of Fruit as to Astonish the Natives

By E. R. Root

natives (or neighbors) by some of his remarkable yields. As a prophet is not without honor save in his own country, so this man, when he went into the scheme of setting out fruit-trees when he was past forty years of age, provoked no little ridicule on the part of some of his good neighbors, and no wonder. Any one who could have the nerve to cast his bread upon the waters like this, and expect to get returns from it in his lifetime, must be visionary, not to say crazy; but that is precisely what our man did. He put out a *seventeen-acre orchard of apple-trees, Baldwins and Greenings, when he was past 40, and inside of ten years he took in one season six carloads of apples.* Not only that, he secured a big crop of honey, 3000 bushels of pears, and 1000 bushels of peaches. "Going some," you would say, and he surely was. His neighbors by this time began to sit up and take notice.

How did he do it? Easy enough with the right man and the right environment.

One such "right man" is C. J. Baldrige, of Kendaia, N. Y., for it was he that did the trick. That his "environment" was right is indicated by the name Kendaia, which is of Indian origin, meaning apple-orchard; for it appears that the Indians, before the advent of the white man, had found that this locality was favorable for the growing of apples, located as it is on the shores of Seneca Lake.

Mr. Baldrige is a beekeeper 52 years old. He has now about 450 colonies of bees, and last year secured 50,000 lbs. of extracted honey. He has a farm of 175 acres, of which 49 are devoted to growing of orchard fruits. There are 17 acres of apples, 6 of peaches, and 26 of pears, making 49 acres all told. The pear-orchard, 11 acres bearing, is about 30 years old. Last year's crop was a light one, as he secured only about 1000 bushels. There are 15 acres of sickle pears set 5 years.

Our "right man" is a firm believer in the co-relation of bees and fruit. So far as the

pears were concerned, he said that the bees contributed almost the whole crop for him, and they were a great help to the apples.

His orchards are within 100 rods of his home apiary of 130 colonies; and while the yield of fruit is increased very materially by the help of the bees, the bees in turn are very materially helped by the pollen and nectar in the spring, just at a time when they need both; for there is nothing like natural pollen and natural nectar to build up bees. When asked whether he ever secured any honey from fruit-trees he replied that about once in six or eight years he got some surplus.

When we inquired whether his neighbors secured as good crops as he (those who did not have any bees), he said:

"An orchard of 1200 Bartlett pear-trees, two miles from my bees, with no bees near it, some seasons fails to set fruit except on the outside rows of trees."

Asked again why the *outside* rows set fruit he said:

"A few bees going to that orchard from a distance work on the trees they first come to, and so some blossoms become fertilized on the outside rows, while no bees reach the trees in the middle of the orchard."

With this exception, most of his neighbors who are in the fruit-growing business have bees near by, because they know that without bees their yields will be irregular

THE DANGER OF SPRAYING WHEN THE FIRST PETALS BEGIN TO FALL.

When we asked Mr. Baldrige whether any harm would result if fruit-trees were sprayed when the first petals begin to fall, he said he thought there would be. When we put to him point blank the further question why he held to that opinion he said:

"At the time the first petals are falling from the trees, other blossoms are just opening, and the bees work on these blossoms. If these blossoms are sprayed, bees will be killed."

When we told him that Mr. Van Rensselaer, who operates that fifty-acre orchard of apple-trees, nine miles north of us, began spraying about the time the first petals began to fall, and that we had seen no bad results, he said:



The man who astonished the natives.



The 17-acre orchard that in its tenth year produced 6 carloads of apples with the help of the bees.

"Mr. Root, you may have both brood and bees dying, and yet may not notice it, unless you go thru the hives very carefully at the time this spraying is going on; and, again, a few days after, you may not discover anything wrong. The fact that bees are working on trees for some time after the first petals begin to fall shows that the practice is fraught with some danger. Believe me, I should not want to run the risk."

WHY SOME PEOPLE FAIL IN GROWING FRUIT.

In answer to the question why so many fail to make a success in growing fruit Mr. Baldrige said:

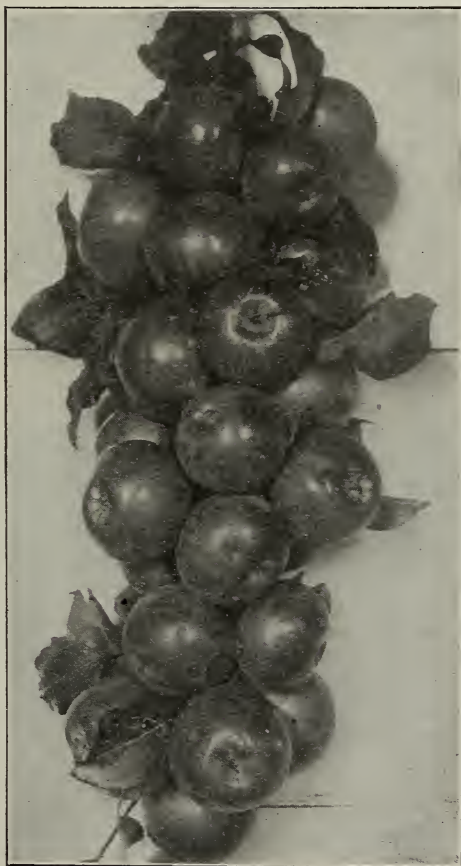
"They fail because they do not meet conditions that are necessary. First, there should be a suitable location; and the location should be favorable to the particular variety of fruit to be grown, giving special consideration to the mat-

ter of air drainage as well as to natural or artificial soil drainage; and last, but not least, there should be bees in or near the orchards, and plenty of them."

When asked what he meant by "air drainage" he said:

"By air drainage I mean a location where the heavier and colder portions of the air can drain away from the orchard. That condition is met by putting the orchard on a hill. An orchard should never be put in a pocket where the cold air can settle, and where frosts would do damage."

Mr. Baldrige attributes a part of his success in beekeeping to his method of wintering. He uses the old-style two-story A. I. Root chaff hive, and he has been using it for the past 35 years with such marked success that he wonders why its manufacture was dropped. When it is remembered that this old hive embod-



A bunch of apples from one sprig of the ten-year-old trees.



One of the ten-year-old apple-trees that helped produce those five carloads of apples.

ied principles that have of late years proven to be safe and reliable, by exhaustive experiments at the Bureau of Entomology, Washington, D. C., it is not hard to discover why Mr. Baldrige has not only been successful in his wintering,* but has with it secured enormous crops of honey.

*During the past winter he wintered 180 colonies at two of his yards in these hives without the loss of a single one. His total loss from all causes the past winter was 14 out of 447 colonies fall count.

The lower story takes ten frames, and the upper fourteen. The lower story has four inches of packing on the sides, two on the ends, and the upper story has two inches of packing all around.

A. I. Root always believed in a warm super as well as a warm brood-nest; and



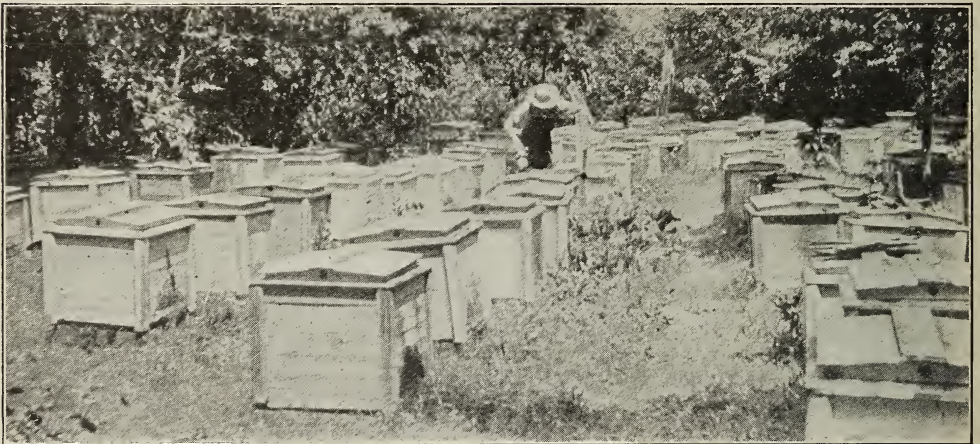
Mr. Baldrige's tractor hauling a load of hay.

Mr. Baldrige says A. I. R. was right. It is possible that this old reliable chaff hive may be resurrected. The only objection to it is its expense. "But," said Mr. Baldrige, "when you divide that expense up by 25 years of service, it is merely nominal. The work of putting the bees up for winter is practically nothing."

HOW HE DOES SO MUCH WITHOUT BREAKING DOWN.

We asked him how he managed to run a series of fruit-orchards comprising 49 acres, a 175-acre farm, and 450 colonies of bees, without breaking down under the strain of the work. His reply is worth repeating:

"I have a son, a young man who divides



One of Baldrige's apiaries where he still uses the old two-story Root chaff hives that have given such good results in wintering.

the burden with me. We use all the labor-saving devices possible, including a tractor, two automobiles, five gasoline-engines, two compressed-air spraying outfits, storage batteries, and electric light, the old two-story Root chaff hive, and enough hired help to get all the work done in season."

Mr. Baldrige is a firm believer in "GLEANINGS" as an advertising medium. He sold ninety thousand pounds of honey

in six months thru a small ad that ran six or seven months. He says, "The past two years I have had quite a demand for the best grades of clover and basswood honey in family-size packages. I have met this demand with the five-pound friction-top pail." He attributes this demand to the A. I. Root Co.'s honey-advertising campaign and the higher prices of sugar and syrup.



DESTRUCTIVE SPRAYING

How it Both Kills the Bees and Sterilizes the Pollen

By Lewis P. Tanton

IF we could get a reliable estimate of the annual crop destruction caused by reckless methods in spraying, it would, in these times of high-priced and scarce commodities, prove a wholesome eye-opener. In 1913 my whole yard of twenty-five hives, and nearly all the bees in this province mysteriously died. The following year, I and some others imported fresh colonies, with the same results. The next year I tried again, upon a smaller scale, but before doing so I attacked most vigorously, in the press, the educational fruit-spraying methods then being taught. The "Fruit Inspector" replied, sarcastically at first, but later pulled in his horns. Since then our bees have had a chance for their lives.

Since 1913 our fruit crops have been bad, and in some cases, such as in cherries, almost a total failure. The decimation of the wild as well as the domestic bees, and other fertilizing insects, is no doubt largely responsible for this, for our bumble-bees met the same fate. Another factor—which I have never seen referred to in print—is the sterilization of the pollen by the arsenate or other spraying solution, so that even if carrying agents were available the poisoned and killed pollen would not fructify the fruit ovules. These two conditions have produced crop reductions and losses which statistics has never yet portrayed.

On the question of spraying, are the old rut, frequently recommended methods, logical and sensibly scientific? We are told to "spray while the calyx cup is open." Is this as wise as it is made to appear? At this time the fruit is upright in position,

and the rain allowed free scope to deluge the cup and dilute or completely wash out the spray solution. Both the leaves and the fruit are small, with little area to catch and retain the poison, and much falls to the ground as waste. Moreover as the fruits grow larger the calyx cup expands, creating a new unpoisoned surface which the codling-worm will surely select for its point of entrance. It is usually three to six weeks after early spraying before the maggot appears, giving ample time for rain and weather to wash out or neutralize the mixture.

Now if we spray when the fruit has developed into form, say about ten days before the worm is due, the conditions should make the process more effective. The calyx, which is always more or less spongy and absorbent, would soak up the liquid at the very point of attack. The fruit being heavier at this stage droops downward. In rain the calyx being underneath is protected from the shower. The poison washings from the larger surface of the fruit, as well as from the leaves above it, would tend downward, allowing the calyx to absorb an additional supply of the mixture from the passing drops. The solution at this period would be fresher, stronger, less injured by weather, and decidedly more deadly and effective. The larger leaf and fruit area carries a greater supply of the mixture which is further disseminated by later showers. You want to kill the worm. It is the outside of the fruit which he attacks first. To poison his gateway as above, appears to me the common-sense way.

Charlottetown, P. E. I., March 6.

ON June 5, 1912, I sold 100 of my strongest colonies. There were 41 very weak colonies left, and these I built up with drone comb that contained a little honey. That year I sold \$160 worth of comb honey.

In the spring of 1913 I had 120 colonies that I secured by dividing the previous year. I had to fight foul brood in all of my yards that year, and the white-clover flow was nearly over before I got the mastery of it. I lost the crop entirely on ten or twelve colonies at the home yard, but had everything in good condition for winter. That fall I sold \$1000 worth of honey.

In 1914 I had some foul brood in all the yards. The spring flow was poor, but that of the fall was extra good, and I sold \$1600 worth of honey.

Last year the spring honey-flow was good. The fall flowers were extra fine; but cold winds and storms came on just as they came into full bloom, the blooming time being ten days later than usual. I sold \$1200 worth of honey and put 170 colonies in winter quarters. One-third of them are in single-walled hives, and all of them are on the summer stands.

During the last four years my bees have averaged \$10.00 per colony, spring count, on honey sales. My first-grade honey is all sold to commission men at wholesale prices. The lower grades are all sold locally.

In addition to the comb honey I produce 1000 pounds of extracted honey yearly. This is from unsalable combs, trimmings, etc. This amount of extracted honey yields about 60 pounds of beeswax. At two auction sales this last winter in the same locality I sold over \$70 worth of second-grade comb and extracted honey at good prices, and as fast as I could make the change.

ONLY FOUR TRIPS TO THE OUTYARDS AND THE CROP IS SECURED.

Four trips are all that are necessary during the honey harvest. They are as follows:

No. 1. Equalizing the brood and putting the bees in condition to stay at home and enter the supers; also putting supers on such colonies as are in condition to receive them.

No. 2. Removing queens where there is

COMB HONEY --- FEW SWARMS

Keeping the Colonies Contented at the Critical Time, Thus Warding off the Swarming Fever

By Mrs. S. Wilbur Frey

[Before attempting to understand the following article the reader should not fail to turn back and study the illustration on page 254 of the April number, showing Mrs. Frey's hive and the large box-like "cap," which will hold three 45-section supers. By the way, the president of the Michigan association considers Mrs. Frey one of the best comb-honey producers in the state.—ED.]

danger of swarming and giving supers where needed. I take out all queens as soon as the bees are well started in the second supers.

No. 3. Giving supers where needed, destroying queen-cells, giving each

queenless colony a comb of young larvæ.

No. 4. Destroying all queen-cells except one in each colony.

RESTRAINING THE SWARMING IMPULSE BEFORE SUPERING.

I always give the bees and queen unlimited room without exposing the brood to chilly air. Shortly after fruit bloom three-fourths of the colonies will usually have six or eight combs packed full of brood with bees hatching rapidly, and something must be done or they will swarm as soon as they can build cells after the clover begins to yield. Frequently many of the largest and most promising colonies will sulk and hardly make a start in the sections. They are just waiting for the time to come when they can swarm.

Can this desire to swarm be prevented? It certainly can. The bees must be led to think they have something to do. Some must be made to cluster ready to build combs, while others are caring for brood. If these conditions are present all the bees that can be spared will be in the field whenever there is an opportunity. Here is the way I accomplish this: When the brood-nest has twelve combs of brood and honey I take out one, leaving a vacant space in the back of the hive for clustering. This space is then filled with an empty frame having no starter. While the bees must cover twelve combs before this operation, I do not allow them more than eight combs of brood after this time. As often as I find more I rob them down to the required number, taking away sealed or hatching brood which I give to weak colonies, filling in the space thus created with combs or honey as required.

CAPPING THE COLONIES.

I cover the brood-nest with oilcloth, leaving one space at each end of the hive open into the cap. I now put on the cap (for description of this see my article in the April number) and into it put one empty frame in front, then four combs containing

some honey; next, an empty frame, thus making six frames in the cap. The bees will occupy these combs as soon as they are strong enough, and will soon cluster in the empty frames ready to draw out combs.

TIME FOR THE FIRST SUPER.

I plan to put the supers on about the second day that the bees are working on clover, or when they begin to store in the caps. They are strong enough for my large supers when they begin to hang over the combs in the cap, and begin to build comb in the empty frames. I super the yard first that is the strongest in bees. Forty out of fifty colonies should then be ready for the supers. I like to begin putting on the supers as soon as conditions are right, as the three yards require three days for this work. By the time I arrive at the last yard I usually find the combs in the caps getting quite heavy with honey. Some may wonder why I do not put on the supers earlier and not be so hurried at the last moment. Well, I like to hustle, and I like to see the bees hustle, and they always do whenever there is any sweet to be found.

CAPS OFF AND THE FIRST SUPERS ON.

I always put on the first supers when the bees are working well. I set the cap off on the ground behind the hive, then arrange the brood-nest with a frame of the youngest larvæ at the back, then put in one more frame from the cap, thus making twelve frames in all in the brood-nest again. The top of the hive and the brood-frames having been cleaned directly after setting off the cap, I am ready for the super.

If the clustering bees have started building combs these combs should be cut in strips and placed on the top of the brood-nest under the super. This hastens the work in the super. All that are heavy with honey should be reserved for the table, or melted up. All surplus combs are used on weak colonies.

MY REASON FOR USING CAPS.

First, the caps discourage swarming almost to a certainty when arranged with empty spaces for the bees to cluster.

Second, when there are bees enough to occupy the supers at once the combs will all be drawn at once and be of an even thickness. I never use separators in large supers.

Third, the foundation will not be gnawed and soiled, and the honey will thus be whiter.

THE SECOND VISIT, IN WHICH QUEENS ARE REMOVED AND THE SECOND SUPERS ADDED.

In from eight to fifteen days, depending upon the weather and on the honey-flow, I

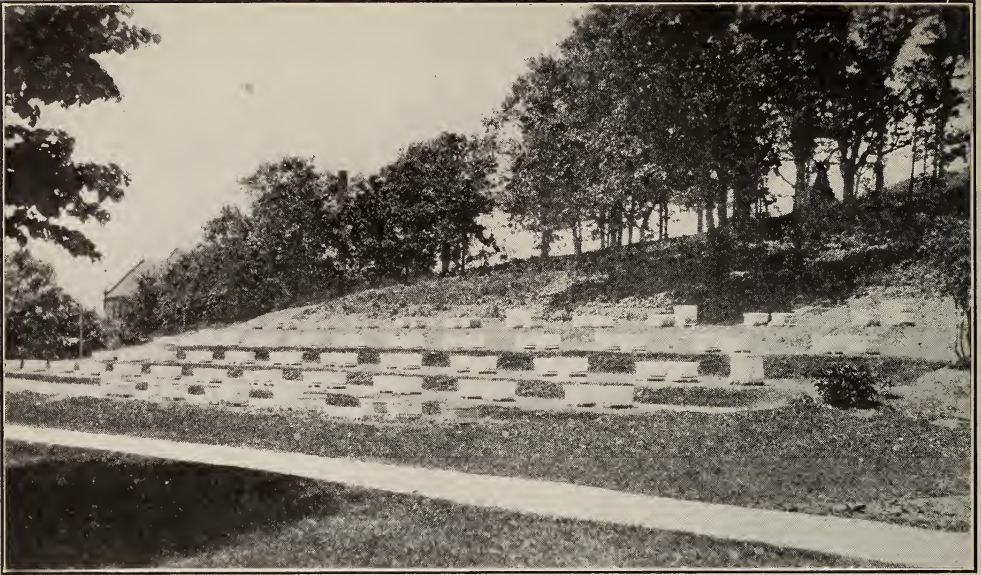
make my second visit to the yard. The sections in the first super are probably well drawn and partly filled with nectar. I put on the second supers immediately on my arrival at the yard, as the clustering of bees in the new super takes them up out of the brood-nest and makes the work of examination for swarm preparations much easier.

After all supers are placed, beginning where I put the first supers on, I examine the brood-nests for indications of swarming. If I find only cell cups, but no eggs in them, I close the hive and pass on. If I find any cell cups containing eggs or hatched larvæ, even if very small, I remove the queen. If she is an extra good queen I save her in a nucleus, otherwise I kill her. If the swarming impulse is quite general I may remove the queens from two-thirds of the colonies, or even more than that if there are that number preparing to swarm. If nearly the whole apiary is preparing to swarm I save in nuclei as many of my best full queens as are needed to furnish combs of larvæ at the next visit. With a boy to help me I can uncover a hive, remove the supers, find the queen, replace the supers, and cover the hive again at the rate of one hive every seven minutes. I seldom fail finding the queen the first time over the combs. Often when there is not much work to be done I can go over a yard in three hours, putting on or changing supers, looking for queens, or the condition of each colony. It matters not how far advanced an apiary is in this preparation for swarming, for I can so treat every colony that there will be no more swarming for at least eight days longer.

THE THIRD VISIT.

In nine days at the longest from the time that I remove the queen I have to return and destroy all queen-cells, as it is possible to have a young queen hatched out on the tenth day after the removal of the old queen. It is not enough to destroy the cells before the ninth day as there yet may be an unsealed larva over which the bees will construct a queen-cell. The queen from such an old larva would be worthless, but she could lead the bees to the woods just as well as a good queen.

On this third visit I first examine some of the colonies that have not made any previous attempts at swarming, and so still retain their queens. If such colonies are still without queen-cells I remove two combs of young larvæ, replacing them with empty comb, starters, or sheets of foundation. I continue thus until I have five combs of young larvæ; then I commence on the queenless colonies, destroying every queen-cell and giving each colony a comb of young larvæ



Apiary at the University Farm (University of Minnesota, St. Paul). Photographed by O. L. Wille. Minnesota stands first in the United States in introducing beekeeping in the agricultural college as a distinct division.

from those I have just taken from the other hives with queens. If by any possibility a young queen is found hatched, no larvæ are given, as this would lead to swarming. When my stock of combs of larvæ is exhausted I return to other colonies that still have their queens and continue the work of examination until this stock is again replenished. I thus continue to examine alternately the two classes of colonies until I am thru the yard; and as I proceed with this work I also note and mark the colonies that need supers.

The giving of the comb of larvæ satisfies the bees. They have babies to feed, and they continue the work of honey-gathering, as they know that it will be impossible to swarm within twelve or fifteen days. Their queen-cells are all gone, and they go to work energetically to build another lot; and, by the time the new lot of queens is ready to hatch, the swarming fever has been cured.

THE FOURTH VISIT.

The last visit is about nine days after destroying the first batch of queen-cells and giving the combs of young larvæ, or eighteen days after the removal of the queen. Nearly all the brood has hatched, the hives are overflowing with young bees, the working force has been kept together, and the brood-nests are nearly full of white honey. The bees' greatest desire now is for a new mother, and this desire can be gratified by simply destroying all the cells except one—the

largest and finest in each hive. I always place the comb of larvæ in the same position in each hive, hence lose no time in finding it. Two minutes per hive serves to destroy the cells, and it is not necessary to examine these colonies again. As the young queens begin to lay, the bees will remove the honey from the brood-nest into the sections. Furthermore, we save the honey that would have been used in rearing a lot of bees that would be merely consumers of still more honey during the hot part of the season when there is little to gather.

At this fourth visit, if the honey-flow is fairly good, the bees should be ready for the third super. This time I raise the top super and put the empty one between the two. I cover the top of the lower super with oilcloth, leaving the bees only one row of sections thru which to go above. I also cover the top of the empty supers, leaving but the one row of sections in which the bees can go up into the second super, now on top. If the lower super should be nearly capped I put this one on top and the second one at the bottom. It is very apparent, if the honey-flow is still on, that the queen will have no desire to swarm with three supers of forty-five sections each.

The bees practically finish one super before I take the queen out. They finish the second one shortly after, and the third later on in the season. They often require a fourth super in the fall.

I do not use bait sections. I have found

from several years' experience that I get more honey, and that it is of better quality, when no baits are used.

INCREASE, AND SUPERING THE SMALLEST CAPPED COLONY.

While I am supering the first-capped colonies I make provision for the next visit when I expect the weaker colonies will be ready for supers. In my rounds over the yard I save one comb of hatching brood from each colony that is strong enough to spare it. Three of these combs with one comb of honey will start a fine colony. Crowd these together with a division-board to keep them warm. Contract the entrance so that only two bees can pass out at once. As I save these combs with the adhering bees I shake the bees from one extra comb with each.

Having prepared as many new colonies on the previous trip as I expect to need I now have colonies that can use the capped combs in turn from the colonies that are ready for the first supers.

Before capping the new colonies I destroy all cells and give each a frame of larvæ. Cells built in weak colonies produce poor queens. Combs from the caps should now be added until there are twelve in all. The brood-nest should be covered after this, leaving, however, one space on each end open for the bees to go into the caps, and the caps can be filled with combs. In twenty days there will be a fine young queen laying, or, if desired, a laying queen can be introduced the day these colonies are started. This is also a good opportunity for introducing choice queens, as young bees will accept any queen.

DISCOURAGE LATE SWARMING.

When I remove the queen early in the season I take one comb of hatching brood

with the adhering bees, and put in a division-board. At the next trip, nine days later, I take out two more combs of hatching brood and give also one comb of larvæ. I move up the division-board and cover the space with a strip of oilcloth before returning the super. This space behind the division-board discourages swarming, and also throws the workers immediately into the sections.

I have found this plan comparatively safe. The bees are requeened early; it saves one operation, and gives more time between visits.

I have been asked why it would not be just as well to allow one queen to hatch from the first batch of cells. The great objection to this is that the colonies would not yet be cured of the swarming impulse. Any cell overlooked would lead to swarming. If a virgin returned to the wrong hive there would be swarming; and once the swarming-note is heard in an apiary in which young queens are taking their flight, there is danger of a panic. By the time a second lot of queens is ready to hatch, the swarming fever is over.

Sand Lake, Mich.

[The details given here may seem like a good deal of red tape; but on account of this system Mrs. Frey no longer has the trouble that she used to have. She writes that she once saw a swarm go to the woods early in the morning, and, shortly after, other colonies began to swarm until it seemed all the bees in the yard were swarming. A woman and three children helped hive swarms from eight in the morning till late in the afternoon. Swarms returned, went into the wrong hive, doubled up and clustered until the whole apiary seemed to have gone crazy.—ED.]



FOUR hundred colonies of bees may be properly cared for with an average amount of time of only two days a week for the year. Success is due more to proper equipment, efficient business methods, and the elimination of unnecessary operations than to any amount of hustling. In the methods here described I claim no originality, having endeavored to adopt only such plans as seem applicable to local conditions. I am not an

ONLY TWO DAYS A WEEK

*Required to Manage a 400-Colony
Bee Business in Three Outyards
Located Fifteen Miles Apart*

By E. S. Miller

keeping is by no means an exception to this rule. Frequent examination of the colonies is important if done intelligently and systematically.

Valparaiso is a beautiful little city of about ten thousand inhabitants, situated in the northwestern part of Indiana, near the

advocate of any "let-alone plan," being a believer in intensive rather than extensive beekeeping. No business will successfully run itself, and bee-

southern end of Lake Michigan, and within about an hour's ride of Chicago. It is connected by steam and electric lines to a number of other towns and cities varying from a few hundred to fifty thousand or more inhabitants. These lines assist not only in marketing but also occasionally in visiting the outyards. However, excellent stone roads extend almost everywhere, and apparently nearly every one who doesn't run a big machine has a Ford. Just outside the city limits, and almost within sight of one of the largest universities in the world, our home is located. Fifteen miles to the northwest, and a like distance to the northeast, are two other main yards, forming with the home yard a triangle having its base along the Calumet River and within a short distance of the Dune region of the Great Lakes. In addition to these I have two outyards, each about five miles from these main yards. Some may wonder why the yards are so far apart. There are two reasons. One is that with clover on one side, and the autumn flowers of the marshes on the other, we can take advantage of both ends of the season without moving bees. The other is that I happen to own the land—quite an advantage when one wishes to erect permanent buildings. At each of the main yards is a good honey-house surmounting a bee-cellar made of concrete or brick, and built expressly for the purpose of wintering. Each building is equipped with a full complement of tools, including not only an extracting outfit and other tools commonly used, but also hammer, saw, ax, shovel, as well as lumber, nails, and all supers and other hive parts likely to be used in the season's work. I believe that depreciation and the interest on the investment in buildings and equipment of this kind are less expensive than the loss of time and labor occasioned by carrying about the necessary tools and material, to say nothing of the loss and annoyance caused when articles needed are left behind. Furthermore, a good building supplied with stove, table, work-bench, and other conveniences, enables one to continue work in spite of rainy weather or sudden storms, which may cause considerable loss of time in outyards under ordinary circumstances. The cellars are dry, well ventilated, and hold nearly a constant temperature of 45 degrees from the time the bees are carried in, about December 1, to the time they are taken out, about April 1. No attention at all during the winter is needed.

Usually in March, before the outdoor spring work begins, the hives and supers are gone over, necessary repairs made, and painting done. Drone comb is replaced with full sheets of foundation, wax is

rendered, and tools are made ready for the summer's campaign.

In carrying bees out to the summer stands we find that two men can easily make the thirty-mile trip, clean up the yard, carry out 150 colonies of bees, and place the entrance-blocks, all in a day's time. If the weather is warm, and the bees inclined to fly or crawl out, they are first smoked in, a notched lath tacked over the entrance, and a tuft of loose cotton used to close the opening. The cotton is not removed until toward evening. Cement hive-stands, which may be left on over winter, save a considerable amount of labor. As the hives are usually dry when taken from the cellar, it is seldom found necessary to clean bottom-boards. Carrying out the hives is rather hard labor, and thus far I have not been able to find an easy way; so I usually try to get some husky man to do the carrying. From this time on until extracting begins I have no need of a helper.

Within a week from the time the bees are removed from the cellar, if the weather is favorable, the yards are again visited. To do away with the necessity of loosening the sealed covers, examinations are made by tipping the hives up from the bottom. Very weak colonies are placed carefully above a strong one with a queen-excluder between. Moderately weak colonies are removed to the stands of strong colonies, while the strong ones are put where the weak ones formerly stood. Those short of stores are fed by inserting a full-depth comb of dark honey reserved from the last extracting the fall previous. I believe this to be the easiest and best way of feeding, and it helps to dispose of the dark honey. Since comparatively few colonies as a rule need attention, a few hours' work is sufficient for each yard.

The queens are usually clipped during the latter part of April; but if the weather conditions are unfavorable it may be postponed until fruit bloom, at the time of the next operation, which consists in placing a second ten-frame hive-body over an excluder on all strong colonies. This supering effectively holds in check any tendency to swarm at this time. Any queenless colonies are placed on the top of other colonies as tho they were supers.

About May 1, bees of the poorest stock are hauled to the two outyards and given a second hive-body without an excluder, since the extra amount of room tends to delay and in some cases to prevent June swarming, and distributes the work so as to avoid a rush in the busy season. When moving, no screens are used. A tuft of cotton closes the small opening at the en-

trance. Crate staples hold the bottom, and two 2-penny nails fasten the inner cover. About one day is required to move.

From fruit bloom to clover there is little yard work except supplying second hive-bodies as supers when the colonies become sufficiently strong, and seeing that every hive is abundantly supplied with stores. During this time, also, comb-honey supers are prepared, since foundation can be handled better at this time than when the weather is cold.

About the first week in June, just before the clover flow starts, all hives are examined in regular order. In all colonies sufficiently strong the empty or nearly empty combs from the upper story are put in place of the brood-combs below, with the exception of one comb of brood and bees containing the queen. If we expect to run for extracted honey we put a super with extracting combs between the two hive-bodies but above the queen-excluder. This increases the distance between the laying queen below and the brood, which now forms the third story. Forty or fifty colonies is the number usually gone over in a day. It is possible to work more rapidly, but careful and accurate manipulation is important at this time. It is necessary also at this and subsequent operations to open and examine each hive in regular order, so that none be missed. There are beekeepers who say they are able to know the condition within the hive by looking at the outside; but I am not yet that far along, and I find the time well spent in taking a peep either from below or by lifting out a comb or two.

If the colonies being examined are to be run for comb honey, the combs or foundation from the upper story are placed below with one frame of brood with the queen, the remainder of the brood being used to build up nuclei or weak colonies, all or nearly all of the bees having been shaken off to form a strong force of workers for the comb-honey colony. Two comb-honey supers are then put on, the lower one containing bait sections. This plan is similar to that advocated by Mr. Doolittle in his book on out-apiaries. Mr. Doolittle claims, however, that honey in combs from the upper story placed below will be carried up by the bees and used in building section honey. It does not seem to work that way here, for the bees will swarm rather than carry up much honey, especially if it is necessary to build new combs in which to store it. Moreover, even if empty drawn combs are used and a sudden flow comes on, the new honey will be stored in the combs instead of being built into the sections above, thus clogging the brood-chamber and inducing swarming.

In my opinion it is better to use one drawn comb next to the frame of brood in order to keep the queen busy for a time, and then fill the remaining space with frames containing full sheets of foundation. Colonies so treated will normally need no further attention during the honey season, except to see that they are supplied with plenty of super room.

In eight or ten days we again go thru in regular order all hives run for extracted honey. Cells are removed from upper stories, those of the best stock together with the brood and adhering bees being used to form two-frame nuclei. The brood not needed for this purpose is left on the hive, and the upper story then becomes an extracting-super with only eight frames instead of ten. By spacing wide we dispense with about one-fourth the labor in extracting.

Colonies not heretofore treated are now likewise treated for swarm prevention, and later the brood is used to build up nuclei into full colonies. It will be observed that no time has been spent in hunting queen-cells in the brood-chamber; and as only a small percentage swarm, very little time is ever spent in climbing trees. In this system of management it must be remembered that the manipulation, to be successful, must be attended to before, not after, the bees get the swarming fever.

There are exceptions; but as a rule no further handling of the brood-chambers is necessary in the production of the season's crop. The work henceforth is chiefly to supply the necessary room and remove and care for the surplus. In taking honey from the hives we have found that the work can be carried on more rapidly by using bee-escapes than by brushing the bees from the combs, tho there are times (weather and other conditions being favorable) when the latter method is preferable. To avoid much lifting when heavy supers are taken off, a wheelbarrow is placed about twelve inches back of the hive, and with a swinging motion the super is slid across. When loaded, the wheelbarrow is run directly into the honey-house and the supers are again slid across to the pile with as little lifting as possible. This is the time of the year when I find it advisable to save my own back by employing a helper to do the "work." Gravity carries the honey from the extractor thru an opening in the floor to a tank in the basement where it is later drawn into 60-lb. cans. These are hauled home in the auto with a truck body, a load being taken each trip. We have not found it of any advantage to heat the honey at the time of extracting. We heat it only as it is market-

ed. We try to extract all the white honey if possible, and get the supers back on the hives in time for the fall flow, which usually constitutes more than half of the crop. In October we again extract, but reserve for fall and spring feeding at least one comb for each colony wintered. We also leave on the hive, until late in the season, one super of honey, preferably that which is not capped, for the bees to carry down.

As our honey is nearly all sold direct to consumers and to retail dealers, our busiest season is thru September, October, and November, for at this time orders come fast by mail, telephone, and otherwise; but selling the honey is another story.

It has been my practice to cut down the number of colonies to be wintered to about 350 and to build up in the spring and summer to 450 or more, in this way reducing the labor and the amount of honey consumed. In preparing for winter the work is begun in August by removing old and inferior queens and in placing their hives above colonies with young queens, using newspaper and an excluder between, or by using the brood and bees to build up nuclei into full colonies. It is important to see that every hive is made strong in bees. Care must be taken, however, as cells allowed to hatch above an excluder may result

in swarming even in September. In this way the old bees are useful in storing the fall crop and are out of the way before winter.

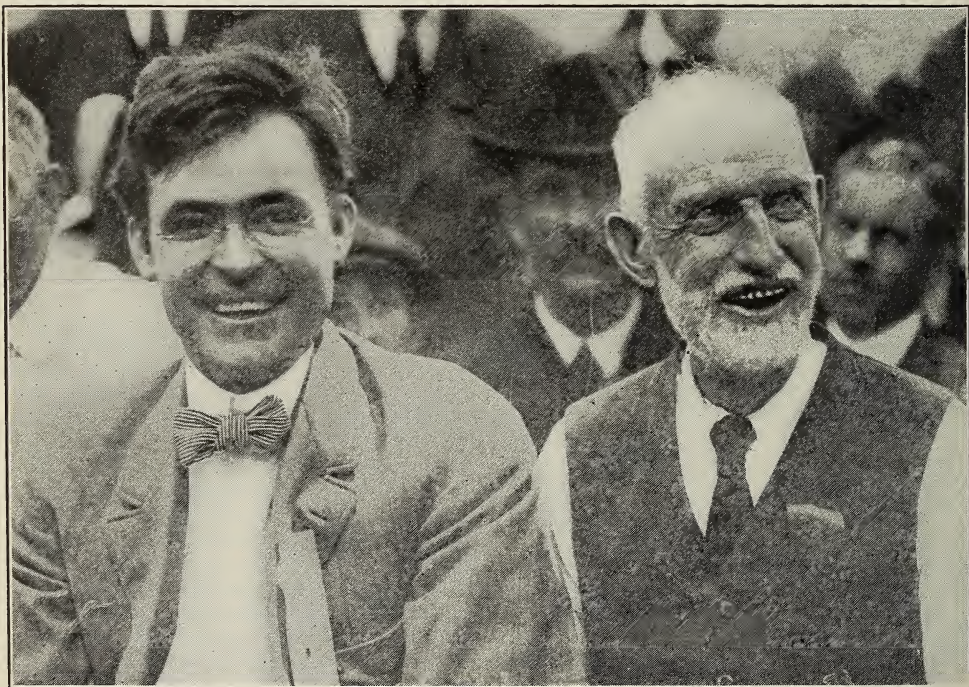
After the extracting in October is finished the colonies at the outyards are hauled in, in November, and about December 1 the bees are all carried into the cellar and stacked up around the wall five hives high, spacing the center of the cellar for better ventilation.

Fortunately I succeeded in getting rid of foul brood several years ago, and do not now have that to contend with. I usually manage to raise about two hundred queens each year. I find my queens long-lived and more vigorous than those purchased.

From this outline given it is not difficult to estimate approximately the actual time spent in handling 350 to 450 colonies. It is found well within one hundred days. In 1916, in which there was an exceptionally good clover flow, the time, including the few days when I had help in carrying bees and in extracting, was not more than one hundred days, and in 1915 it was considerably less. My crop last year amounted to about 20,000 pounds, notwithstanding the killing frost in the early part of September, which probably reduced the crop by 15,000 pounds.

Valparaiso, Ind.

E. S. MILLER.



J. H. Donahey, of the Cleveland *Plain Dealer*, and A. I. Root, as caught by the staff photographer of the *Plain Dealer*, at the beekeepers' field meeting that was held in Medina in July, 1914. What the two were smiling so broadly over no one can recall. But it is evident that they were "smiles that wouldn't come off." Nuff said."

GLEANINGS IN BEE CULTURE

FROM THE FIELD OF EXPERIENCE

Conversations with Doolittle

"In which direction ought beekeepers now to work to better their condition? Taking beekeeping as it is, what does it most need? Honey varies in price but little from what it has been in the past twenty years, while nearly all the things necessary for the apiarist's livelihood have gone soaring to double and triple what they were ten years ago."

Much depends upon what our questioner means by better conditions. Every one, or nearly so, seems to have gone distracted over the dollar-and-cent part of our pursuit, as tho that were the acme of our existence. It is reported that John Jacob Astor once said to a man who was envious of his fortune, "Would you take care of what I possess for what you want to eat, drink, and wear?"

"No!" was the response.

"Well," said Astor, straightening up, "that is all I get."

"But," says one, "I am anxious for my children." Is it any worse for your children to toil for their living than it has been for you to do so? Let me change that. Would you deprive your children of the keen enjoyment you have experienced in building a home of your own by giving them one already built up? "Lots of money" does not bring happiness. On the contrary, it often brings discontent, and, if given to one who has not earned some money for himself, as a rule it spoils the usefulness to the world of one who otherwise would have been one of the pillars in the community in which he lived and in the nation. If we as beekeepers can secure for ourselves a comfortable home, tho it may be humble, together with something to advance God's kingdom in the earth, according as he blesses and prospers us, and with that be content, we may right now enjoy a little bit of Paradise.

No pleasure has ever come to me like that which has come thru success at last, after working patiently and perseveringly over some problem which confronted me in life, whether about the bees, the building of a home, or in trying to elevate mankind. He who is not willing to work patiently till success crowns his efforts, and in that patient work realize the truest enjoyment, is not the one to be of the greatest blessing to the world. Nearly all of our great men who have lifted communities and nations to a higher plane have come up from the hum-

blest homes thru patient toiling, and hard study—perchance by the light of a pine knot.

Not long ago I received a type-written letter from a beekeeper who asked me to excuse the blunders, as he had written it with one hand while he tended the baby with the other. How many of the dudes and "calamity howlers" in the land would have done this without saying something about "bettering their condition," if they were to write under such circumstances? This man will doubtless rise to a higher plane than he could possibly enjoy had he been cradled in the lap of luxury.

Suppose the beekeeper does not live as well as a Morgan or Rockefeller. He has the pure air, the sunshine, and honest and honorable enjoyment, and, as a rule, gets a comfortable living. If the beekeeper is not satisfied with his condition as it is, let him spend a few days carrying hods of mortar to the top of some three or four story building, receiving therefor \$1.50 to \$2.00 a day, as thousands are doing. He will come back to beekeeping and thank God for the busy bees, even if there is now and then a poor season, and prices of other commodities are out of all proportion. Looking at the matter in this light, therefore, bettering our condition may mean raising our pursuit from the dollar-and-cent affair to where we shall appreciate it as one of the grandest pursuits God ever gave to man.

Taking beekeeping as it is, what is most needed are men and women who can see the heights and depths which are possible along the line of intelligent thought and enjoyable health in a vocation which brings happiness. Probably our questioner intended that I should answer only from a practical, financial standpoint; but it is well for us to remember that money-making is not all of life; that health, happiness, and correct views of life are of far more importance.

I am convinced that placing out-apiaries about the home yard, and working them for extracted honey, tends more toward success along the financial line than any other plan. Why I say work for extracted honey is that, if worked on the tiering-up plan, not enough swarms will issue to pay for looking after; and if the honey is all left till the season is over, little time is required at the out-apiaries during the swarming season, so that the home apiary can be worked for comb honey. By placing this thoroly sealed and

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ripened honey, taken off after the harvest is over, near the ceiling of a warm room for several hours, it can be extracted as easily as when first sealed, and a quality procured not obtainable in any other way.

Borodino, N. Y. G. M. DOOLITTLE.

Letters from a Beekeeper's Wife

In the Garden, May 1, 1917.

Dear Sis:

The bees are flying every day now, I can see them dart past me on their way to the apple orchard, which is all pink and fluffy with blossoms. I never feel that the world is real this month—it seems like a dream world or Fairyland. There's such a lightness and buoyancy to trees in their new green, and the fruit trees on every hand are just huge, soft pinky bubbles that would disappear at the slightest touch. I wonder if the bees are as deliriously happy as they look when they come flying out of their dark hives after the long winter. How wonderful the world would be to us each spring if we had been indoors for five months and our memories were not long enough to hold over remembrances from the year before!

Rob is taking the packing away from the hives and is delighted to find his colonies in splendid condition — strong and vigorous. It certainly paid to give them plenty of winter stores and lots of packing. The only colonies in the home yard that suffered at all are the few that were at the end of the yard beyond the wind-break of evergreens. They are weak and two are dead. The colonies at that end used up a far larger amount of honey than the others. Of course it took more energy to keep them warm, and the honey stores had to supply the energy.

Mr. Hood brought an old beekeeper over here yesterday to see Rob. He is from way back in the mountains and this is his first trip from home. His wonder and delight over Rob's beekeeping appliances was pathetic. He keeps his bees in box hives! But the most curious thing about him was his big bundle of superstitions. Rob asked him how many colonies he kept, and he replied, "I don't count my bees—it's bad luck." Then he went on to say that last year he lost a good many colonies, that his little boy had died, while he himself was quite ill, and his wife was so worried and grieved that she neglected to go out and tap

each hive and tell the bees of the boy's death. Of course it was only to be expected that the bees would die after such an omission! Think of really believing such things! I would like to venture that those colonies died of foulbrood.

It seemed as if some superstition cropped up every minute during the conversation. Rob asked him how much he sold his colonies for, and he said that down his way they never sold bees. Then he went on to tell how they manage a money transaction over bees. A prospective buyer will talk with a beekeeper about the value of hives of bees in a general way, casually inquiring what the beekeeper thinks his bees are worth and whether he would be willing to part with any. If the price suits him, he takes a team the next dark night and carries off as many colonies as he wants, leaving the money for them on an adjacent box. As soon as he has gone, the beekeeper, who in all probability has been on the lookout, goes out and finds the money, and every one is satisfied. Oh, yes! the money must be in gold coin—nothing else will do if bad luck is to be averted!

We shouted over these things when Rob told us, but there's a pathetic side too. Think of being bound by beliefs of past and out-grown centuries. I'm glad we are living in this good, free, and enlightened twentieth century. We all scoffed at superstition, but I made mental note that Rob has a horseshoe over the honey-house door and I can't keep from picking up a pin so that I'll have good luck all day! Don't tell any one that there is still a remnant of the fifteenth century in us!

After our mountain friend had gone yesterday I was cleaning the bookcases, and as usual could not resist dipping into a book now and then. I can see you shake your head over that girlhood trick of mine. I am afraid I am too old to be cured of it now! Among the books I found one on bees written by one Moses Rusden, "an Apothecary, Bee-Maffer to the King's most excellent Majesty" in 1679. In his preface he talks about "many false proverbial fayings" relating to bees; viz.: "That Bees are lucky to some perfons, and will thrive with them; but unlucky to others and will not thrive with them. That they muft be bought with Gold, or Corne, or elfe muft be given, or found; otherwise (forfooth) they can by no means be fupposed to thrive. And that they are unlucky to be carried by water, and must be removed fouthward,

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and many other such ridiculous stories, not worthy the mentioning. When the true and only reason why Bees thrive not with every man alike, is either the want of judgment or care, or both, in those who look after them; as appeareth by this proverbial inference, that when the owner of the Bees dies, then the Bees also (as if they had a Sympathy with their owners) will die soon after; which I have known, seemingly verified, by some ancient persons who kept Bees, had skill, and looked well after them whilst they lived, but they dying, the greater part of their Bees within one year after have died also, which happened not because the owners died, but because the skill and care of the Bees died with those owners."

Wise Moses Rusden! He belongs to our generation and the superstitious friend of yesterday belongs back with those other Englishmen of 1679 who, according to this Bee-master to the King "have run into many errors and by-paths of ignorance."

Zounds! Methinks this epistle is of unfeemly length, yet I do humbly beseech thee to accept graciously this grain of Incense offered with much devotion by your Majesty's most loyal and most obedient Subject and Servant,

Mary.



The Purpose of Laying-worker Drones

Why do we have laying-worker drones? Allow me to give my opinion, which is, that thru these drones lies our greatest opportunity to improve on the qualities of the bee. Why? Because, in almost all animal and insect life, the Creator made male and female capable of caring for all their needs, such as gathering and storing food and making for themselves suitable shelter or whatever they might need for their sustenance, or else he placed them in the midst of all their requirements for their existence, that they might live in the midst thereof and multiply. The honey-bee is an exception to the rule, for here we find that neither the male nor female takes any part in the gathering or storing of their food or preparing for their protection from the elements, but are looked after and in most part fed by their slaves, the workers. Now, bear in mind that neither the father nor the mother has any tendency or instinct to take notice of or feed upon blossoms, or to gather food for themselves, or help to protect themselves in any way; yet they are supposed to produce an endless supply

of workers, the great ambition of which is to do the very thing which their parents have no instinct to do. If it were not for the laying workers the usefulness of a colony would be at an end when they become queenless. However, they have one function yet to perform before they cease to be, and that function is to do their part in keeping their species from developing into a lot of lazy idlers. To accomplish this, the workers, after a certain length of time (about 28 days), begin laying eggs hatching nothing but male bees, which are allowed to exist unmolested in the hive to the end of their natural life, and perhaps become the fathers of a good number of the young queens in their locality. These drones, as we know, are the product of the mother worker alone. Having no father, they should possess the traits of the worker bees, or at least their progeny would be more inclined that way than the progeny of a drone whose ancestors for countless generations back had on the maternal side done nothing but lay eggs and be looked after, and on the paternal side live perhaps for but a few days, fly out, and meet their mate and fate.

As to worker drones being inferior or short-lived, or producing bees that are, I do not believe, for the reason that a worker bee is tougher, and can stand more hardships than a queen can. The experiment of comparing the longevity of their drones would be interesting. It must be understood that this article is dealing exclusively on theory; and we all know that theory does not always work out in practice; but if I had the time to do some experimenting along this line I certainly would enjoy it. It may take a good many bee generations to make any noticeable difference. It might develop the combative qualities, but I don't think it would. One cross might give good results while more would be too much of a good thing.

I happen to think of the mule for an illustration. How much has the mule improved as a work animal on account of the generations he has been used for that purpose? It has been said that "he is neither proud of his ancestry nor hopeful of his posterity," and surely the same could be said of the posterity of the working bee unless we allow the drones of the workers to perpetuate their working instincts.

Springfield, Mo. W. J. PURVIS.

[Mr. Pritchard suggests, in answer to

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the above theories, that we do not know that laying workers ever work, in the sense usually meant by that term. That is, we do not know that a field bee ever becomes a laying worker; the little evidence available all points the other way.

Obtaining data on questions like this is very difficult owing to the impossibility of controlling the mating of the queens. If the greenhouse experiment alluded to on another page is a success, the problem would be much simpler.—Ed.]

Painting Hive-bottoms

Hive floors or bottoms, whether placed directly on the ground or on stands of some kind, are more subject to decay than anything else about the apiary. Most beekeepers, whether they are managing a few colonies or several hundred, seem to think that anything will do for a hive-bottom, and, since it is poorly constructed, is not worth painting.

Where only a few are to be painted, the same paint that is used on other parts of the hive is all right; but beekeepers who count their colonies by the hundreds should use black roofing-paint or something similar. This is well suited for this purpose, and not nearly as expensive as the lead and oil paint. There are some hive-bottoms in Liveoak County that I dipped eleven years ago. These are still in use. Ordinary coal tar serves very well and is readily secured.

For several years I have been using a roof and iron paint. The price was 37 cts. per gallon delivered, altho it has advanced now. I have also used water gas-tar, a residue from the manufacture of gas. This costs only \$4.00 a barrel. It makes a very good coating but requires nearly a month to harden enough to handle on a warm day. This season I added five pounds of pitch to the gallon. This cost me 1½ cts. a pound by the barrel. I hoped that by this method I could get a good thick coat at one operation, while with the tar alone two dippings are required, and the job is prolonged about three weeks for the two operations, besides the extra labor.

I use a dipping-vat as shown in the illustration. This is 24 inches long, 10 inches wide, and 30 inches deep. This vat is seamed at the end. The preparation has to be heated over a fire; and to protect the seam I dig a pit for the fire and lower the vat about 10 inches below the surface of the ground, then plaster all around with mud. The temperature often runs so high as to melt the solder if not protected from the fire.

The vat should never be more than two-thirds full; otherwise, when the temperature runs too high it might boil over. None of these paints seem to be injured by heating, tho it is not necessary to heat more than somewhere near the boiling-point in order to make the liquid thin so that it will penetrate into every crevice.

After the boards are dipped, they are



Dipping hive-bottoms in hot roofing paint.



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stacked nearly straight up, as shown, the entrance end resting on sheets of roofing-iron lying on sloping ground. The boards are separated by pieces of comb-guides at each corner. In this way the paint drains off into pans made for the purpose set into trenches under the ends of the roofing-iron. The straps of iron that bind the sheets of roofing make good prongs with which to handle the boards.

When dipping, stack a lot of boards to the left; grasp one at the entrance end and dip down past the center, then quickly change ends, and, holding the rear cleat with the prong, dig the other half. Rest the corners on the side rails of the vat for a moment, then let an assistant take it away. There are about 340 boards in the stack shown in the illustration. With the help of a Mexican I dipped them in about five hours.

Sabinal, Texas.

J. A. SIMMONS.



Moving by Auto

In this county it becomes necessary frequently to move our bees—in fact, my whole outfit is so constructed that I can move at any time of the year without any fussing to get ready. All parts are made to fit so that the labor of getting ready is so reduced that I need no help in moving the yard.

I have a full outfit of moving screens for the top and bottom of the hives. These telescope over the hive and fit tightly enough so that they are absolutely bee-proof one way or the other. Each moving screen has a 1-inch space beyond the edge of the hive. The screens do not need to be fastened in place. I once shipped 65 colonies of bees from San Diego without fastening a single screen.

I do all of my hauling with an auto, and would not think of being without one now, as it is certainly my faithful "busy bee." I built a hauling-box on the back of the car, which is equipped with a tin bottom on the floor to make the hives slide in and out easily. A large jockey box on the running board takes care of smokers, veils, hive-tools, canvas, and everything else of that nature.

I haul 30 shallow hives of bees at a load with only enough bottoms and covers to make the load fit tightly. The length of the haul is seven miles, and as the valley is as level as a floor, no hills to contend with, I can haul two loads of bees, also two loads

of bottoms and covers in one day. I haul the latter first, and place them so that when I come with the bees I can set a colony by each floor and cover. After the last load I lift the hives out of the bottom screen, after giving a couple of puffs of smoke; contract the entrances, put canvas on top of the upper screens, then the cover and so on. Everything is left in this way until I get each hive on the new location. I then haul the honey, giving an extra story of honey to each colony. I bring the other material whenever it is convenient.

Imperial, Cal.

F. J. SEVERIN.



Superseding During a Honey-flow

Is it practical to change failing queens during fruit-bloom without any cessation in egg-laying? Queens can be successfully introduced during clover, basswood, or any other main honey-flow. I have changed or introduced many queens during the above honey-flow simply by taking two combs of hatching brood from the colony with queen to be replaced, setting them in a hive by the side. The old bees will all fly back, making it easy and a safe way to introduce the queen as only young bees are left.

When the queen gets to laying nicely I set the frames with brood, bees, and queen back in the hive from which they came, removing the old queen at the same time, to take the place of the two combs of brood removed. Slatted dummy frames are better than combs that are empty, as all the more honey will be carried up in the super during the short time the two combs of brood are out.

By the above plan there is no setback to the colony—in fact, there is a small gain, as both queens will be laying for a few days and there will be no let-up in storing. One might imagine that the plan would be too much work, but there isn't, and, above all, it has never failed with me.

This plan of queen introduction can not be carried out so well during the early part of the season, as the brood can not be spared so well, neither is the weather as favorable. It seems almost impossible to change queens early enough in the season to be of much benefit the same season, altho helping a colony with a poor queen by adding brood from other sources, with the introduction of a young vigorous queen in place of the poor one, might result in



F. J. Severin's Ford with the carrying box large enough for 30 shallow hive colonies.

A backyard painting scene. In California much of this kind of work may be done out of doors. In the right background 300 moving screens are stacked up ready for use any time.



The typical shed apiary much used in the West.

The framework is covered to make a shade; and if desired one end may be screened in to serve as an extracting room.



FROM THE FIELD OF EXPERIENCE



Sunrise Apiary on a southeast slope in the heart of the town of Iowa City.

no small gain, especially when the harvest is bountiful and lasting. A colony left with a failing queen might amount to almost nothing. Another gain by the change of queen is the amount of honey that will necessarily be removed from the brood-chamber to the super. In most apiaries there will be found an occasional colony that has a queen which, unless replaced, will lessen the crop.

A. C. GILBERT.

East Avon, N. Y.

A Profitable City Apiary

"Sunrise Apiary" appears at first glance to be located in a forest. Instead, it is less than four blocks from the business section of a city of over ten thousand people. It stands on the terraced bluff overlooking Ralston Creek, in Iowa City, Iowa, facing the southeast. Mr. Eckbarring, the proprietor, says that his bees can get to work very early in the morning, and for this reason he selected the location, and the name suggested itself.

The workshop at the top of the bluff houses the supplies and the honey. Supers loaded with the fall flow of honey, to

the amount of three or four hundred pounds, stood on the floor at the time of the writer's last visit, and the summer flow was considerably greater.

Each super is numbered, and each queen is registered, so that Mr. Eckbarring can keep an accurate record of the production of each queen. He caters to the local demand, producing both comb and extracted honey, the proportion running about half comb and half extracted. He remarked rather quizzically that, when he ran out of comb honey, people began to call for it; and when he ran out of extracted honey, the demand began to rise. He finds a ready market for his entire production, relying entirely on customers who come to the apiary for it. He states that he makes on the average \$5.00 clear on each hive, or thereabout, each year.

White clover is the chief plant from which the honey is produced—smartweed, goldenrod, and even cockleburs furnishing some honey also. Years ago, at Riverside, basswood was one of the principal sources of honey; but the nearest trees to Iowa City are at least ten miles away, and most of the basswood-trees have been cut down.

C. B. ISAAC.

Iowa City, Iowa.

FROM THE FIELD OF EXPERIENCE

The Cause of Swarming

J. E. Hand's article in the July 15th issue for 1916 has inspired me to set forth some of the causes of swarming as I see them.

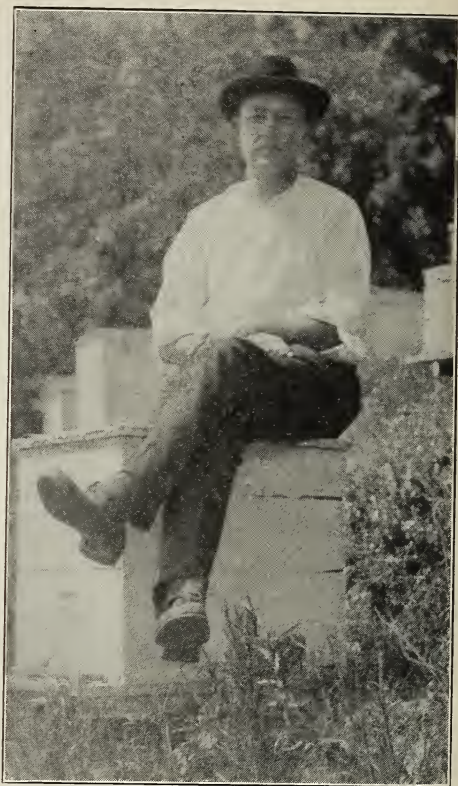
It should not be necessary for me to say that swarming is only obedience to a law of nature, the law of reproduction. Many of the writers on swarm control have seemed to disregard this, yet it is a law that must be followed by all living things or the species becomes extinct. In most higher forms of animal life, sexual relations have a direct bearing upon reproduction. In case of bees this relation is only indirect.

In many forms of life individuals can exist alone, but not so with bees, as their existence depends upon their ability to maintain a group sufficiently large to provide for their needs and maintain organization as a perfect unit. Swarming or reproduction occurs only when every need of the unit has been provided and when there is a surplus of bees sufficient to establish the new unit without impairing the existence of the parent unit, or what we call the parent colony.

That the bees' greatest mission is the fertilization of plant life thru the distribution of pollen seems sure, for the high tide of bee life comes at the high tide of blooming plant life and ebbs with its failure. With the first flowers of spring, activity begins within the hive and breeding is immediate. The more the flowers bloom the faster the numbers of bees increase until the hive becomes overpopulated.

The presence of nectar or pollen in the flowers is the inducement nature offers the bees to make their visits, and more visits are made when the nectar is scanty than when it is bountiful, hence the less inducement for more bees and the less tendency to breed rapidly. As the nectar increases, breeding is increased accordingly.

When a colony reaches the swarming period the bees may be said to have reached the zenith of their activity, for at this point the hive is well provided with brood, the majority of which has been sealed. Thus there has been an additional force put to idleness, as the nurse bees have been relieved of their activity in feeding the multitude of larvæ, which were a constant care while the queen has been hurrying the work of filling all available space with eggs. She too has been relieved of the heaviest of her burdens and her labors consist in filling the cells that hatch from day to day, with eggs. There is little available



V. H. Eckbarring, proprietor of "Sunrise Apiary."

room in which to store, more bees are hatching daily, and idleness begins to set its pace with the colony, due to no fault of the bees. Their desire to get busy culminates in the sudden appearance of queen-cell cups which are at once supplied with eggs that a new mistress of the hive may be provided. Of course when the swarm issues the bees are accompanied by the old queen, the mother of the whole family.

From day to day the congestion becomes steadily worse, as the young queens develop in their cells and idleness becomes greater as the days go by until a part of the bees are forced to "hang out." This hanging out is widely known as the sign of swarming, yet few have stopped to consider the cause of the sign. Eventually the time arrives when it is useless for idleness to continue any longer; and as all preparations for the safety of the parent colony have been completed by the maturing queen-cells, amid great excitement the bees swarm out, forming the new unit. The queen among the rest joins in the rush and within a

FROM THE FIELD OF EXPERIENCE

short time they are out as a complete answer to the law of reproduction.

After issuing, the bees of the swarm take up their work in the new quarters where, as nature evidently intended, the abode should be supplied at once with the requisite amount of comb for the needs of the colony. Therefore we find that the supreme effort of the bees is bent in that direction, and at no other time is there displayed such zeal for comb-building.

The requisite amount of comb having been completed with sufficient stores to carry the bees thru the dormant state of winter, breeding slowly wanes as the flowers fail. There is no tendency to build again in the established colony. The bees breed and gather honey to fill the comb provided; but when it is necessary to build more comb, nature has ordained that the bees be inclined to build in new quarters, as the work of the established unit in that line seems to have been accomplished.

Redlands, Cal. P. C. CHADWICK.

To be continued



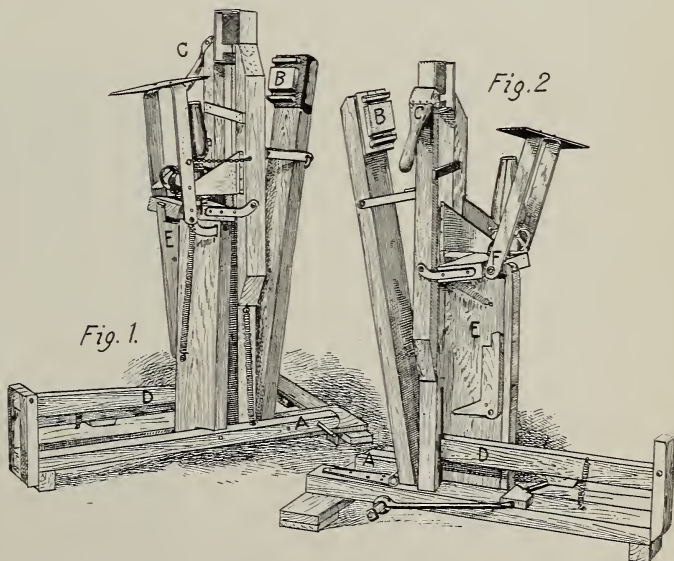
My Folder and Foundation-fastener

The illustrations show my section-folder and foundation-fastener. Most of my friends think it a commercial possibility, but I do not, for it could not be made to sell for the price of other machines, and, besides, beekeepers are a "hard-headed bunch" (I'm a beekeeper myself), and had rather get along with what they already know how to use. When putting up sections with this machine the operator sits close to it on the lamp side. The sheets of super foundation are cut into four equal parts. For the first section a piece a half-inch wide is cut off one of the equal parts mentioned and this is thrown aside. This leaves the piece the right size for the top starter. A section is picked up. V cut up, placed under the centering-block B. One side is bent up with the left hand and two sides with the right hand, and drawn into the form. The

right pedal being pushed down by the foot brings the hot plate into the section. This is adjusted so that it strikes the section at the point where the foundation is to be fastened. The foundation is then placed against the centering-block and pushed down on the hot plate. The pedal is then released and the hot plate springs back, the foundation being pushed down on to the side of the section and fastened.

The fourth side of the section, which is the lower side when in the super, is now bent down and the corners forced together with the hand lever.

The section is then pushed out of the form and reversed with the handle on the block and brought back into the form. A large piece of foundation is fastened to the bottom in the same manner. Raising the right pedal with the foot raises the hinged table supporting the hot plate. When this comes up one-half inch (this may be adjusted from one-quarter to three-quarters of an inch) the leg E springs under and holds it in that position. The pedal is then pushed down, which brings the hot plate in position half an inch above the bottom of the section, cutting the foundation off at that point. The section is taken in the thumb and finger of the left hand at the top, and the left pedal pushed down with the left foot. This removes the centering-block, pushes the section out of the top of the



form, and trips the ledge holding the hot plate so that a spring may bring it down to its first position ready for the next

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section. The finished section is then in the left hand, right side up, and a piece of foundation the right size for the upper starter for the next section in the right hand.

The hot plate when moved into the section slopes toward the point where the starter is to be fastened, and when it swings back again nearly all the melted wax is wiped off on the edge of the starter. The blade is thin and sharp, and right on a section, so that the foundation itself has to be pushed not more than 1/16 of an inch to strike the wood. In some machines the hot plate has to be permanently adjusted at the height the bottom starter is cut off, which is at least half an inch. This means that the starter has to be moved down that distance each time before it touches the wood, which gives a chance for it to bend in or out or go down cornerwise. In my machine the starter is located exactly where it is wanted.

FLOYD MARKHAM.

Ypsilanti, Mich.

The Shaken-swarm Plan Perfected

Well aware as I am, that a veteran of the shaken-swarm plan, M. A. Gill, makes a practice of giving one or two frames of brood to each shaken swarm, the remainder of the hive containing frames with starters only, yet for those who cannot secure satisfactory combs from starters, Mr. Gill's plan is not the best.

In this locality, no plan yet known, by which the new shaken swarm is given any brood, is satisfactory. When the plan was so much agitated, a few years ago, many spoke of the effort to swarm out within a day or two after shaking as a great drawback to the plan, and so it is, unless overcome. I have made hundreds of shaken swarms, and have produced carloads of honey from such swarms, naturally trying to practice the best methods, requiring the least attention, aside from supering, after shaking. The best results from a single colony, in all our experience, have been from shaken swarms—one for comb, the other for extracted.

In a yard containing 750 lbs. of bees on the arrival of the flow, and with conditions favoring content within the hive, it probably makes no reduction in the total yield if the field bees are mostly in 100 rather than 150 hives. Therefore our plan is as

follows: Have the colonies in pairs, then shake most of the bees from both into one new hive of wired frames with full sheets of foundation except one frame of comb, which may be empty or contain some honey (not a cell of brood). Above may be one or two section supers, as required. Run in the younger queen with the swarm.

Between the hive and the bottom-board be sure to put either an empty shallow super or an empty hive-body. Two or three days later, return to the yard and remove the empties that are below the new brood-nests. Some small spurs of comb may be built, which must be torn off.

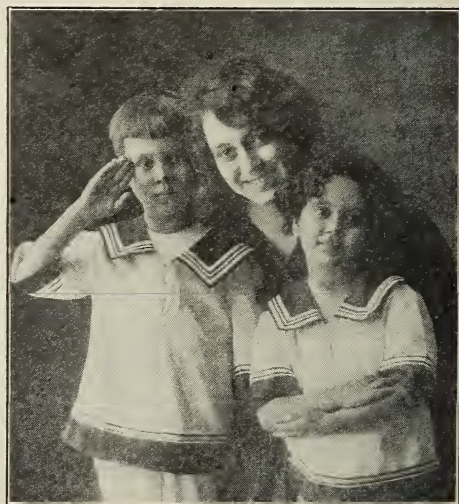
The bees are satisfied and will not swarm out nor loaf, but will work with full vigor.

Another fairly good way is to cage the queen in the shaken swarm, so that in about 2 to 3 days the bees will eat out the candy and release her, by which time the bees will have given up all notions of swarming.

Briefly, this is the key to the successful use of the shaken-swarm plan for comb honey: A powerful force of bees; a hive with full sheets of wired foundation, except one frame of comb; not one cell of brood at the start, from which queen-cells may be begun; empty clustering space beneath for two or three days; and a good flow.

Meridian, Idaho.

E. F. ATWATER.



A glimpse of some of the readers of GLEANINGS in Cuba. On the picture we read, "To Mr. A. I. Root. 'Daisy,' 'Johnny,' and 'Clara Trista.'"—Santa Clara, Cuba.

FROM THE FIELD OF EXPERIENCE

A Comb-Honey Method Similar to Extracted-Honey Production

Dr. C. C. Miller:—What do you think of this method? I operate my colonies for extracted honey in a city where the flow is slow and of long duration. We average from 30 to 50 lbs. light grade; use the ten-frame Langstroth hive for early breeding, and shallow supers for surplus honey to keep what little clover honey I get compact and separate from fall honey.

Queens must continue breeding thru the summer to keep up the working force, owing to the drawn-out flow.

a queen-excluder and a super of empty drawn-out combs is placed. Any colony that is crowded in the brood-chamber and whose queen has not gone above to lay is treated at this time by taking a shallow frame of brood from a colony having more than one to spare.

Fig. 3. When lower section of frames of foundation is drawn out and well filled with brood, and perhaps most of sealed brood in the Langstroth hive is hatched, I reverse these two shallow sections, put the Langstroth hive back on stand and place these shallow sections on it. The queen is put in the Langstroth hive under an excluder.

Fig. 4. When middle section is well filled with honey, exchange positions with the top super, which is becoming empty of brood daily.

Any method I adopt must contain the principle of shallow supers for surplus and a Langstroth hive for early breeding, allowing the queen free range in both shallow super and main brood-chamber, also keeping her above an excluder 10 days, then putting her below. Methods similar to these do not seem to prevent swarming here. Most of the brood must hatch on a separate stand to be effective.

After gleaming most of the methods in print I intend to adopt this method, which is no more nor less than a comb-honey method for extracted honey.

Using drawn comb in shallow brood-chamber would be more desirable than foundation but I have only one set of drawn comb per colony at this time.

Any comments or criticisms will be greatly appreciated.

St. Louis, Mo., Dec. 9. J. H. FISBECK.

Dr. Miller replies:

Your scheme is ingenious, and your diagramming especially commendable. The first question that arises is whether you are really sure that it is necessary to have the brood hatch on a separate stand. Have you thoroly tried having the queen in the first story with only one brood, and excluder over the first story, and the brood on top of all other stories? Did you at the same time have abundant ventilation at the bottom by having the hive raised on blocks or by other means? Did you at the same time have ventilation between the first story and the second, between the second and the third, and so on, and then ventilation under the cover? If you have not done so it would

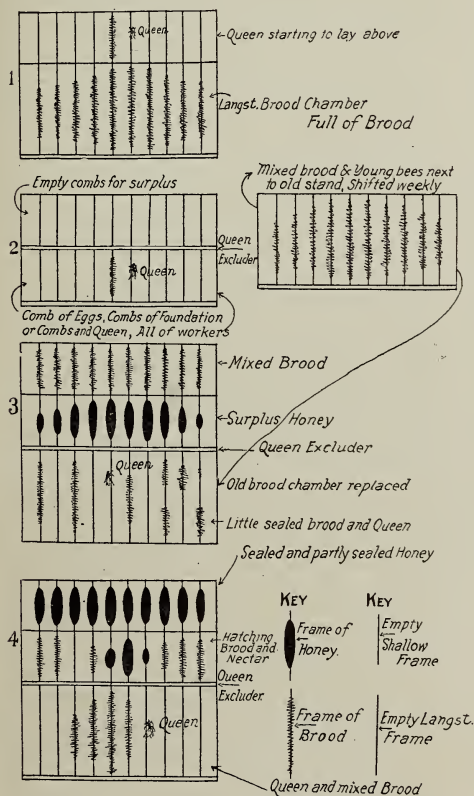


Fig. 1 represents the main brood-chamber filled with brood, and queen starting to lay above. Honey is starting to come in.

Fig. 2. Main brood-chamber is set next to old stand and shifted weekly to throw the workers into the original colony. When first removed all but two frames of bees are shaken into a shallow super of foundation with queen on a frame of eggs and an empty frame to catch pollen. Over this

FROM THE FIELD OF EXPERIENCE

be well to try it out before adopting a plan involving so much trouble.

It looks as if your plan should be effective, and yet until a plan is submitted to the bees one never can feel sure just how it will turn out.

At No. 2 you say, "Main brood-chamber is set next to old stand, and shifted weekly to throw workers into original colony." I suppose that means that the main brood-chamber will be jumped each week from one side to the other of the stand on which the queen is. Then no doubt your expectation is that all field-bees from the old brood-chamber will join the queen, while none of her fielders will desert her. May be it will pan out that way; may be it won't; depends somewhat on surrounding objects. On an open plain, with no surrounding objects within two or three rods, I should expect that when you make the first jump the jumper will gain more by it than the jumpee.

The queen is confined for about 3 weeks to the shallow story while the main brood-chamber is jumping. If the shallow story is shallow enough, *some* strains of bees might conclude to swarm from being too crowded.

As already said, you can tell only by trying; and if your plan doesn't turn out as well as expected, it will be only one more to keep me company in the many times I've been fooled. But there's lots of fun in trying.

C. C. MILLER.



How Young Queens Help

Our scheme for swarm control when running for comb honey in out-apiaries will not work in all localities, for it failed for us in San Diego County, Cal., also in Kerr County, Texas, where the honey-flow is slow and long drawn out. It has been a success with us in Mesa County, Colorado, also here in northern California where our surplus comes the last two weeks of June, July, and August, and mostly from sweet clover and alfalfa under irrigation, and where bees live from hand to mouth until the honey-flow begins in earnest.

During the first part of May we start queen-cells as per Doolittle's plan in "Scientific Queen-rearing," that is, in grafted cells in upper stories of very strong colonies with queens below and queen-excluders between. Not less than 100 cells are started for 150 stands of bees, so we are sure to

have plenty. We do not dequeen, but in about eight days we go out again and place empty hive-bodies on one hive of each pair of hives in the apiaries. This hive-body is placed over the hive containing the *fewest* bees and the poorest queen. We try to have all our hives in pairs. Two frames of brood are raised from lower story and placed in the upper story with queen-excluder between. The next day, if the weather is fine, we put a queen-cell between each two frames of brood raised, and go to the next apiary, which we work the same way. Four or five days later, we return and take out the queen-excluder from each hive that has hatched a perfect queen, and that perfect queen or the bees (we do not know which) does the dequeening. From those that have not perfect queens, or for any reason did not hatch at all, or were destroyed, we change the upper hive over to the other hive of that pair and try them with another queen-cell which has been brought from home. Not many fail the first time, but there are always a few.

In this way by the first of June every other hive in our apiaries is two-story and we see to it that each has a young laying queen. This time is about our swarming season; but we always feel quite sure of these young queens, so we look after only the old queens at the side. This we do every trip which is about every eight days. As soon as we find a colony that has started cells or eggs in cells we pick it up and set it back ten or fifteen feet, throwing all the worker-bees into the hive with the young queen with her double story. This cures the old colony's swarming-fever by robbing it of most of the field bees. By this time the honey-flow is on in earnest; and when it does come in earnest, all old queens are moved back whether they have contracted the swarming fever or not, throwing all their field-workers in what we are pleased to call our comb-honey colonies. They are sure some colonies, but their upper hive-bodies have been taken off and placed over the old queen; and from two to four (it takes this many to hold all the bees) comb-honey supers put over the young queen; and as the bees have been used to going above, they go right to work. In a good season they make from four to thirteen supers of comb honey each, twenty-four sections to the super. They average about seven supers each, while our old queens give us from one to three supers each of comb honey, for we remove that upper story as soon



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as they are strong enough and give them a comb-honey super. The bees being used to going above go right to work. We just drifted into this method some six years ago in Colorado. Where our honey-flow is in mid and late summer we have never failed in getting a crop of comb honey with the exception of one year here two years ago when the grasshoppers took everything.

I do not know whether this plan is old or new; but, as I said, we just worked into it gradually until we proved it a success, if the honey-flow came at the right time. We always try to get the best breeders and use a different breeder from a different yard each spring. It is our experience that we can get more honey from a hundred and fifty colonies of bees put in the very best shape we know how, than we can with from 300 to 400 stands kept in the slipshod manner. Our bees are 32 miles from home and in two yards. I use a Ford car with truck-body. We used to use a one-ton truck, but it was too expensive for our long runs. We like the Ford for our work the best.

Hornbrook, Cal.

RAY D. TAIT.



Can Bees be Kept in an Attic?

Why, certainly! I did it, and had a gorgeous time, with the accent on the gorge. Also, I wrote it all up for the *Atlantic Monthly* in two articles—"The Beattitudes of a Suburbanite," and "A Crisis in Royalty," which you'll probably find on file in the public-library shelves. But in case you don't—or haven't one—I'll epitomize.

I began with one hive, as a raw beginner too. And my wife was dumfounded when that hive came home by express! She wasn't wholly reconciled to the unconventionality of the idea, either. It seemed altogether too much like "bats in the belfry," and "what would the neighbors say?" for we lived on a much-traveled street in a suburban city. To settle that point right now, altho that first hive fronted on that same street, it was years before any neighbor except "next door" knew anything about it; but when fall came, and we had 18 pounds of nice comb honey for our own winter eating out of that one hive, the household had a sudden change of heart.

So next year I enlarged operations, fitted out a little attic room for it, and began business with a boom. That I'm not doing it now hasn't anything to do with the attic point, but to a civic situation which I shall

write up later, and, most of all, to a bull-headed Irish city forester and his spray-tank. But of that, no more just now.

My experience and luck led me into a combination that was pretty ideal. I had a room, dark as a pocket. I put a skylight in the roof, with a movable copper-wire mosquito-frame in it. That gave all the light needed. Then I set stanchions around the two sides next the slanting roof—a corner room—with mine own fair fingers, and a stout bench at the right height, so that three supers could be tiered up on a hive yet not touch the roof-slant. The hives were on that bench, and each had a wire-net frame above the super, under the cover. Thus I need only lift off the cover to see what was doing in that super. The bees couldn't get out to bother me, and my looking didn't bother them. If any did escape in handling, they soon flew up to the skylight and out thru a bee-escape. When the thermometer went up to the high nineties, that room always was reasonably cool, with the foot of space between roof and hive and the open skylight for ventilation. In wintering, the skylight was closed, and two or three peels of newspapers tacked outside of each hive permanently sealed it from cold save what came in at the entrance.

Now, that entrance was a gem—a triumph. They were "Danz" hives; entrance the full width of the front, normally. So I made a broad flat trough, as wide as the hive, about four inches high, outside measurement; wire net stretched across the top, at the hive end; an extra cleat across left a slot into which a zinc storm-door could be slid that would narrow the entrance to 6 inches by half an inch high. Another just like it at the outer end of the trough could also be closed blind, if for any reason I wanted to pen them in for a few hours. In winter it had a storm-door like the other, thus keeping out a lot of useless cold.

Now, that trough was about 3 feet long, more or less, and went horizontally right thru the sloping roof to the outer air. I built a port-hole casing round it, with an outer slope sharply down to keep rain out, and with that slope sanded after painting, to give foothold up the 6-inch rise, one trough to each hive, 8 inches apart.

What did I gain by it? First, the bees had the whole slope of the roof below the ports for an alighting-board; and they used it too. Next (to them) they were hived in a cliff, in a singularly convenient

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little cave; and they were thoroly happy and content, 2½ stories up from the ground, fronting east and south. It was a most fascinating sight to lean over the trough, and watch that hurrying little army of workers rushing in and out. I don't remember ever seeing them bunched and loafing around the entrance, altho I did in the original hive, less advantageously placed. In a room near by was a window. I made a wire cage to fit it, projecting a couple of feet, and it brought me within 4 feet of the nearest hive-entrance, where I could lean out and watch the young bees taking their baby steps in aviation. That was fun too! One day a kingbird appeared, roosted on a finial of the roof, then came down like a hawk from behind the chimney and whirled around among those little bees, and back to his roost with a mouthful. Had it been just for once I'd passed it; but it wasn't. He meant to be a regular boarder. So I ran down, grabbed the children's toy air-rifle, and some shot, and went out for some target practice of my own. I didn't hit him; but the rattle of shot close around him gave him an idea it was unhealthy, and he left—for good.

I spent a good many joyous hours up there with my bees, with the usual ups and downs of beginners and ultimately got up to 70 pounds yield—comb honey—for my best hive, with intent to increase the number to six—all the room would hold. Some day I'll tell you why I didn't. But it hadn't any earthly thing to do with the attic-use, let me repeat. *That is a positive success.*

Boston, Mass. JOHN PRESTON TRUE.

Some Clipped Queens that Lived to a Good old Age

On page 909, for Nov. 15, I notice that Herbert Marten has trouble clipping queens. We clip the wings of all queens (both sides short) and then introduce them after sundown at the back of the frames, with a puff of smoke. I lost one last season in a colony which refused to accept any queen, and that was the first and only one I have lost in many years.

I handle the brood-frames, but do not touch the queen because of propolis on my fingers. I have an assistant who has been with me since 1910 and she can clip a queen to the queen's notion and has never harmed one.

We catch the queen by the wing with the

thumb and first finger of the right hand; then take her by the shoulder between the thumb and first finger of the left hand, head in and feet down, and extend the second finger of that hand under her, so she will put her feet on that finger and not over her wing; then she can be safely clipped. One of my queens lived more than eight years. She was clipped six years of that time and safely changed to a queenless colony the spring she was eight years old.

I now have a 1911 queen with a strong colony. She was clipped in 1912, and in early spring of 1913 I divided her colony for queen-rearing and let a friend take the queen to a queenless colony. In late summer of that year he returned her to me, and I put her in a queenless colony where she is now.

Another queen from which I have raised some queens for two years past was hatched in 1912; has had no wings since early in the spring of 1913, and is the best one I have. I think a queen properly clipped is as good without wings as with them, and I will continue to clip all wings short so that the queen will not attempt to fly and get lost in the grass, but will remain on the entrance-board in case a swarm should go out.

J. W. NICHOLS.

Dayton, O.



Natural comb built under a hive. The bees got underneath thru a small opening and filled the whole space solid. Besides this the colony had filled two extracting supers and 112 sections.—Photographed by J. B. Colson, Uffington, Ont., Can.

BIRDS came in a bunch

March 21—robins, blue-birds, and meadow-larks. March 29, soft maples in bloom; 31st, bees brought out of cellar, thermometer reaching 72 degrees; and within 36 hours the ground was covered with snow.

FOLDING sections with a Hubbard press. Ira D. Bartlett says, *Domestic Beekeeper*, 166, "After practice one can fold a box of 500 in a half-hour. I have folded a box in fifteen minutes, and very seldom take more than twenty minutes."

"ONE BEE inside the veil is worse than a dozen with no veil on," p. 139. T'other way 'round here, Jean White. The minute a bee finds itself trapped in a veil, it gives up all thought of stinging, and turns its whole attention to escaping.

FLOUR, especially rye flour, is used as a substitute for pollen. Flour generally means bolted flour. I wonder if the best part isn't bolted out. Any grain ground and not bolted is good, I think. I have used ground corn and oats, the kind fed to cows, and of course unbolted, with satisfaction.

EUROPEAN foul brood is called a disease of the unsealed larvæ. I don't believe it's as much so as you might think. Take a diseased comb and tear open the sealed cells, and you will find a lot of them containing dead larvæ that showed no indication of the disease until unsealed. But the thing to spot European foul brood by is the *yellowish* unsealed larvæ.

"Extracted honey can be used in a thousand and one ways, while comb honey can be eaten only with a spoon," says Dr. Cheney, p. 293. Surely, doctor, when you have biscuit and honey you don't eat it with a spoon. "In this locality" the with-a-spoon method is just the one way in which comb honey is never eaten. Always with a knife—cut with a knife, and spread with a knife. Are there really different fashions in different places, as to the way of eating honey? What's the vogue at Medina?

SURPRISE is expressed by Mrs. Allen, 127, that I should say that outside combs sometimes have less brood than others, while with her it is *always* so. Possibly she has 10-frame hives, while I have 8-frame. Years ago, when I had 10-frame hives, I think the rule was that both outside combs were entirely without brood. Then when I changed to 8-frame hives, one or both outside

STRAY STRAWS

Dr. C. C. Miller

combs were often broodless, but often with a little brood in one or both. Gradually the amount of brood in the outside combs increased,

until now one or both may be as well filled in the height of brood-rearing as the central combs. I don't know why the gradual change, unless it be that the bees are now better. But take it thruout the season, and the rule still is that there is less brood in the outside combs.

THE OLD idea that a laying worker can be lost by being shaken on the ground 40 yards from the hive can hardly be accepted nowadays, even on the word of such a veteran as Major Shallard, p. 61. Please remember that it is now understood that there are a whole lot of "her;" indeed, a large proportion of the colony are found by dissection to contain eggs. Do you suppose they have never taken a cleansing flight, marking their location? Even if you should lose all the layers, are you sure the other old workers would be less hostile to a new queen? And even if you succeed in introducing a queen, are you sure you would not have done it just as well without "losing" your layers?

THAT'S a very fair show-up as to the difference between extracted and comb honey for the beginner, p. 285; and at one point, Huber, you might have made the case even stronger for extracted. You speak of "the inadequate excuse that the production of comb honey requires no honey-extractor," but you don't mention an investment that comb honey does require in the way of *extra* sections and foundation that must be always on hand. It's utterly impossible for you to know in advance exactly how many sections you will need, and you should have ready in advance enough sections for a big season, whether the season proves big or not. And, no matter how closely you plan in the spring, you will always have a lot of unfinished and untouched sections in the fall to be carried over. You don't have to have a very large apiary before the extra capital thus lying idle will buy you an extractor.

MRS. ALLEN declares against dummies, p. 127, among other things saying she doubts if it's a much quicker operation to get out a dummy than a comb. That's the gist of the whole matter, Mrs. Allen. After taking dummies out thousands of times during

many years, and after having handled a considerable number of colonies without dummies during the whole of last season, my assistant declares it is economy of time, labor, and temper, to have the dummies. Just now it looks as if there might be some readjustment of measurements, if it should be concluded that $1\frac{3}{8}$ is too close spacing; and if I were beginning all over again I should want a hive with a dummy, and just as much room for the frames as if no dummy were used. In other words, if a dummy is used then extra room should be allowed for it.

"NO PRODUCER, large or small, of comb honey or of extracted, can afford to disregard the opportunity for selling honey directly from the house," p. 10. That's a rather sweeping statement. Relations to the grocers may be such that no selling at the house is desired. Some would say, "Excuse me from being called away from my work at the busiest time to spend half a dollar's worth of time to sell a quarter's worth of honey." While most may enjoy talking to strangers about bees and honey, some who are good producers dislike it much. Why not allow each one to his own taste? [As a general thing, a beekeeper having honey-signs by the roadside will be remote from any grocery by several miles. Where that is the case there would be no one to object. If any of the members of his family have time to spare, and can deliver the honey and take the change, the man of the house need not waste any time himself. No beekeeper can afford to drop his work in the midst of a harvest, when every minute counts. If a man has a home, by the help of his wife he can make a success.—Ed.]

"DR. C. C. MILLER once told us that he was a very much-despised man when the dandelions came into bloom," p. 252. That was not dandelions, Mr. Editor, but sweet clover. The feeling was very bitter against sweet clover; but now the farmers don't object to it, and some even sow it. But I don't think there was ever any very strong feeling against dandelions "in this locality." When I came here 61 years ago the dandelion was a rarity. A neighbor across the way had brought a few seeds from the East and planted them in her dooryard. Now there are acres of the golden carpet. I count the dandelion of immense value, coming as it does so early; and when you say, Mr. Editor, "It yields little or no honey," I feel somewhat aroused. Years ago I had perhaps half a pint of thin, fresh-gathered honey that I *shook* out of the combs, holding them flat over a pan and shaking them. I thought it was dandelion honey. I think

so still; but I'm willing to be shown. Show me. [While it is true that you may have had a little dandelion honey, is it not probable that the honey of which you speak came from early fruit-bloom, such as thorn-apple, wild cherry, tame cherry, peach-trees, and the like?—Ed.]

WHEN the bees were set on their summer stands, each one had its dead bees (if it had any) cleaned out, and into its entrance was shoved a solid sealed frame of honey, and then the entrance was closed with a thin board having at one end a hole $\frac{3}{4}$ to 1 inch square. That was a good deal easier for the beekeeper, and very greatly better for the bees than to tear open the hive to see whether any feeding was needed. If any colony was about out of stores, that would make it pretty safe until it could gather; if it had already enough stores to carry it thru, that extra comb would encourage breeding, and would allow storing in supers just so much sooner. In other words, it was swapping a comb of fall honey for an equal amount of white honey in the super. [Is there not danger, doctor, that when you put a comb of honey into the big entrance under the brood-nest you will invite robbers? No, *you* would not do it, because you would be careful to contract the entrance; but a beginner might not.—Ed.]

THIS YEAR I'm going to work chiefly for extracted honey. No, it's not because of the upward tendency of the price of extracted. It would not surprise me if comb should advance just as much. One reason for working for extracted is because I'd like to learn how it is done by the man with a small apiary. Another, and a strong reason, is because I want to do my bit to encourage the use of wholesome honey instead of the objectionable glucoses and their like. Comb honey is not likely to become an article of every-day diet for the masses. Extracted may; and if it should it will be greatly for the health and vigor of the nation. So it's me for extracted. [The beekeeping world will be glad to know that you are, in your 86th year, going into the production of *extracted* honey for the next year. You have always been a comb-honey producer, and now it is refreshing to know that we can get the value of your experience in the production of the liquid article. When European foul brood visited your apiary, it seemed like a calamity to you and everybody else. While it cost you something, your experience was worth many thousands of dollars to beekeepers, because you fear it no more. Now can you discover something new under the sun in the production of extracted honey? If you do you will be going some.—Ed.]

I AGREE with R. F. Holtermann that a shallow extracting-frame is a first-class nuisance—see page 251, April. I know it is claimed bees will begin storing sooner in a shallow super; but if the beekeeper will raise a comb or two of brood into the super when put on, there will be no trouble about bees storing honey in it if there is honey to be had.

* * *

I thought I had outgrown nursery rhymes; but one as clever as found on page 279 stirs up my old interest in those quaint old rhymes that go back so far into the past.

* * *

I congratulate Mrs. S. Wilbur Frey, for she tells us on page 254 that she has never failed to get a good crop of honey, and this after thirty-two years at the business. Not many beekeepers can say as much.

* * *

I believe Stancy Puerden is right, as a rule, in placing honey on the outside rather than on the inside of cornmeal muffins in cooking; but yesterday at my son's table I believe I ate the finest brown bread I ever tasted. Honey instead of molasses was used for sweetening. Try it.

* * *

On page 251 the editor predicts a bright future for beekeepers, and bids us take off our hats and shout. Perhaps it is as well to shout now as at any time; besides, we may feel more like it now than in August after excessive drouth or moisture has cut our crop short, and we are buying eight-cent sugar with which to winter our bees.

* * *

Dr. Miller gives two golden rules for building up weak colonies in the spring that should be worth lots of money to beginners—page 256, April. Here they are: "Always help first those that need the least help, leaving the very weakest to be helped last;" and "Never reduce a strong colony to less than four brood." The whole story in a nutshell.

* * *

It was refreshing to see those dandelions on the cover page of GLEANINGS for April 1—preceding by a month or more those on lawns and in fields; but why—oh why!—did the artist place the head with maturing seed below the blossoms, when nature places it away above the flowers? As the seed ripens,



the stalk lengthens until it is two or three times as long as when in bloom. This is so the wind may gently lift the seeds from the mother

plant and carry and plant them in some new field that more may be. Nature is very thoughtful. A pious Hebrew would say God instead of nature, and it does us no harm to think that way.

* * *

Bees appear to have wintered well. In our home yard of 185 colonies wintered on summer stands we have found but three dead colonies. One of these was queenless, and another had clustered on one side of the brood-chamber but could not get the honey on the other side, and starved. Bees were confined to their hives about four and a half months. Another had clustered on new white combs.

* * *

C. D. Cheney prophesies good things of extracted honey—page 293, April; and the best of it is he is doubtless right. I remember very well D. W. Quinby, of New York, writing to the *American Bee Journal* more than forty years ago, begging the beekeepers to refrain from sending much extracted honey to the city, as there was little demand for it. Surely the world keeps moving.

* * *

Says the editor, page 252, "The dandelion's one good excuse for existence is found in its great service to the honeybee in producing abundant pollen. It produces little or no honey." This may be true at Medina; but Medina is not the whole world by a long chalk. If the editor could come to Vermont and see hive after hive crammed with dandelion honey the last of May I believe he would be as much surprised as C. P. Dadant was last August to find dandelion honey on the table for breakfast. During the last few years I believe the dandelion has given us more honey than any other plant aside from the clovers. Blessings on "Root's Roses!"

But when we find the bees moving it up into the supers to make room for the queen I sometimes think it possible to have too much of a good thing. The honey is a rather dark amber, and not very bad-flavored when well ripened. It granulates, however, soon after being gathered, when extracted, and makes mischief when stored in sections.

THE wonder days of spring are here again, and the heart of every man and woman not utterly crusted over with the life of cities thrills as tho in answer to a call. The farmer starts his big work, shoulder to shoulder with nature herself. And even the man of the shop or the office, who has his own bit of earth and loves it, goes hunting out his fork or spade from behind the shed door and starts his garden. Women tend flocks of fluffy baby chicks, and trim up their rose-bushes and plant their poppies and sweet peas. Beauty has come back to earth like a queen, bringing her gifts of leaf and blossom and growing things.

This, then, is a good time to put a beautifying touch or two on our beeyards. We who keep bees partly for the delight of it have an opportunity to make a wonderfully attractive spot of the corner of the yard where the hives are. Low trees and flowering shrubs are particularly desirable; but it is better to set most of these out in the fall, or very early in the spring while they are still dormant. But castor beans and sunflowers and hollyhocks can be started at this time and will quickly add great beauty to the apiary. Well-trimmed grass is beautiful of itself; quick-growing vines can be trained over the fences, and beds can be made of cheery annuals—nasturtiums, petunias, poppies—provided, of course, that there are no chickens to interfere.

SUGGESTIONS FOR THE NEW SIDELINERS.

Unless you have reason to think some colonies are short of stores, better not open the hives before fruit-bloom. Then the bees will be busy; there will be little likelihood of robbing, the weather will probably be warm, and you can make your spring inspection with pleasure, and with that deliberateness that the amateur loves. That is the time, too, to hunt queens for clipping.

Don't wait till the bees swarm to get your new hives. Plan ahead and have things ready.

A FEW SUCCESSFUL ONES.

Everybody loves pictures, and GLEANINGS is so generous about giving them to us that I hope we may show thruout the summer some choice pictures of attractive apiaries.

We all love stories too. Isn't it good to be children all our lives, forever under the spell of story and picture? To bee-lovers, therefore, there is both pleasure and profit in the tales of the experiences and final

Beekkeeping as a Side Line

Grace Allen

success of other keepers of bees. So these, too, we are glad to offer from time to time. Here, for instance, is one that shows the splendid possi-

bilities in taking up beekkeeping as a side line. Sometimes one is compelled, because of advancing years or declining health, or some unexpected turn of affairs, to give up his main line of work, and then what a comfort to have a well-established side line to help fill the hours and the interest and the pocketbook! Take the case of Mr. H. C. Cook, of Omaha, Nebraska.

Seventeen years ago, while Mr. Cook was a police patrolman in Omaha, he captured one of those stray swarms that give some of our beekeepers such picturesque starts in their careers. He followed this good fortune with equally good judgment by promptly purchasing the A B C of Bee Culture, and thru its study and the application of the ideas thus gained he has been able to make the bees pay their own way, while he realized his great ambition of ten colonies, then twenty, and then fifty. Fifty is a good comfortable number, and is practically his limit now, as he usually sells off any increase beyond that, making from \$75 to \$125 a year from these sales alone. While beekkeeping was still only a side line, the yearly profits gradually increased, ranging as high as \$500 a year. Mr. Cook has now retired from the police force, and, giving his attention especially to the bees, has averaged \$1000 profits each year for the past five years. Now, hasn't that side line worked out ideally? And isn't his little yard interesting and attractive?

Mr. H. B. Allen, of Cozad, Nebraska, declares that bees are no small thing, even on a farm like his, that raises pure-bred Holsteins and lambs by the carload. Last season, from 45 colonies he got 1500 pounds of fine comb honey and 4000 pounds of extracted. He has now 57 colonies, having increased from four colonies in four years by the Alexander method and the assistance of GLEANINGS and A B C.

It was with the idea of letting the bees help educate his six children that Mr. D. F. Rankin, of Brownstown, Indiana, started with bees six years ago. Last season, from 23 colonies the family had all the honey they wanted, gave generously to the neighbors, and sold \$285 worth. Then they packed 27 colonies snugly away for winter, and sent the oldest boy off to college.

THE condition of bees seems to be satisfactory at this date, March 5.*

Overstocking is becoming an increasingly serious problem in this part of the state.

More and more we learn of the value of the bee as a pollen-distributing agent, and more and more its value is becoming known.

Is there a large overproduction of comb honey, or is the use of extracted honey becoming greater, to the detriment of the demand for comb?

It is not the amount of larvæ or undeveloped brood that counts when the honey season is on, but the amount of young bees ready for business.

It is said that the honey of Inyo County alfalfa district is so thick that it is not practical to produce extracted honey, it being impossible to extract it in a satisfactory manner.

Certain buyers are now trying to contract for the ungathered crop of honey. Producers should not be too anxious to sign up for future delivery, especially at a figure that will cause regrets later on.

Moving pictures were used for the first time in our state convention in February of this year. Prof. Coleman, of the State University, introduced the innovation and expects to enlarge on their use at our next convention.

Direct information to the beekeeper as to the price of honey would be of vast importance at selling time. Weekly quotations would tend to inform all beekeepers on the market and save many of them substantial amounts of cash.

I am pleased to state that the state association lived up to the gentlemen's agreement to let the officers of the association be elected from the North for the ensuing term. A better feeling will prevail all around, and the confidence of the North will be secured for the future.

* These items were written for the April number, but were received too late for insertion in that issue.—Ed.



There is reason to believe that we are facing a heavy swarming season. If the bees continue to develop as far in advance of the honey-flow as now seems probable, heavy swarming is almost sure to be the result.

Brood-combs containing much small larvæ should not be handled in a temperature much below 70 degrees. Sealed brood will stand a much cooler air, especially that which is nearly matured. Bees will continue to hatch when matured under a surprisingly low temperature.

The County Farm Adviser movement is being adopted in many counties, and bids fair to be far-reaching in its benefits to rural pursuits. Every branch of rural industry is covered, including beekeeping, poultry, etc. The State will send a man to special gatherings to lecture on the subject called for, and all problems are considered even to marketing. Germany has had a system something on that line for some years. We are just waking up to the need of it.

The election of Mr. M. C. Richter, of Modesto, as secretary of the state association, is an advanced step that cannot be commended too highly. Mr. Richter is a scholar of fine temperament, studious, and of a scientific turn of mind. Success of the office is assured for the next year. Of Mr. B. B. Hogaboom, our new president, I cannot speak from acquaintance; but from reputation he is a man well capable of carrying for the office—a practical beekeeper, a gentleman, and a man conscientious to a fault.

It seems that I have placed my good friend M. H. Mendleson in an unfavorable light with Mr. Crane, judging from his third paragraph, page 196, March. Perhaps I did not make myself clear on what I wished to say. Mr. Crane has taken the wrong view of my note, for I did not wish to say that the method given would prevent the development of wax-moth on the comb, but rather that no comb honey was allowed to be handled after the time the moth begins to fly, the honey being placed in safety against any chance of a moth-miller reaching it during the night. This eliminates the danger of its coming in contact with the egg-laying miller.

IN the spring a young man's fancy lightly turns to thoughts of love." That is undoubtedly true of young men; but in the

spring this woman's fancy strongly turns to thoughts of gardening. Give me credit, Mr. Editor, for writing two pages right at the beginning of the garden season without mentioning so much as a seed. It was a triumph of will power over inclination. "Breathes there a woman with soul so dead, who to herself hath never said, 'this is my own, my plant I raised?'" It makes little difference what kind of plant. It may be a rare flower, it may be a tomato-plant; but if you planted the tiny seed, saw it come to life, and cared for it thru its different stages to maturity, the joy is there. You worked in partnership with the Creator.

But even if the love of gardening was not born in you, don't fail to raise something this year. Every bit of unused soil should be set at work helping to feed the world and reduce your own food-bills. If you simply cannot make a garden yourself, let some garden-loving neighbor use your land on shares. You don't know what a feeling of satisfaction it gives one, when parsnips and vegetable oysters are retailing at eight cents a pound, to know that you have two long rows of them in the thawing garden. But that is nothing to the bliss you feel when you go to your back yard in May and pull up delicious, pearl-like green onions, crisp radishes, and cut young, tender asparagus. True, they may have been at the grocery four or five weeks earlier; but the flavor of the wilted, imported things was not the same at all, and the price sent grocery bills up in jumps.

Then in June there are green peas. Last year there was an article in an otherwise good magazine by a famous New York chef. He undertook to tell how to cook green peas. His instructions were to boil them rapidly in a large quantity of water, and, when done, to pour off the water. That is what I would call a culinary crime. His further directions were to sweeten them and serve them with some kind of sauce. His idea in treating them in that way was to preserve the green color. The poor ignorant city man probably never ate green peas fresh from the garden, cooked before they had a chance to lose a particle of nature's delicious aroma and sweetness.

The following is my recipe for cook-

OUR FOOD PAGE

Stancy Puerden

ing peas: First, pick them yourself in your own garden. Shell them immediately and put them on to cook in a very little boiling water—just

enough to keep them from scorching. Simmer them gently until tender. This is very important, for, if allowed to boil rapidly, much of the flavor is driven off into the air and wasted. When they are done, twenty to forty minutes, depending upon the age of the peas, dress them with a little cream, milk, and butter, or butter alone, if preferred; season, reheat, and serve immediately. You will have a dish fit for a king. To sweeten them would be carrying coals to Newcastle.

If you prefer to gather the peas in the cool of the evening, don't, please don't, put them on the cellar floor until morning. Shell them and parboil them immediately. Then when you reheat them for dinner the next day they will be almost, if not quite, as good as when eaten the same day.

If you are one of those unfortunates who live in a city and have to buy your peas at a grocery or market, sweeten them with honey. It is nature's own sweet, and more like that of the fresh vegetable.

Never waste the water in which delicate-flavored vegetables have been cooked. If you do not wish to use it with the vegetables, start them with very little water and cook until it is all absorbed; or, if you must pour it off, save it for enriching soup. Do not be guilty of feeding valuable mineral salts to the kitchen drain-pipe. The drain-pipe will not be benefited, and you will be robbing your family of necessary food elements.

For the past few years writers on health have been laying great stress on the importance of plenty of mineral salts in our diet, and also the necessity of sufficient bulk, roughage, or cellulose. Fine white flour, polished rice, commercial corn meal, and many of the breakfast foods have been deprived of valuable mineral substances as well as the desired cellulose in the process of manufacture. We are told repeatedly that our bones, teeth, and nerves are being starved by the modern too concentrated foods, and that life itself is often shortened for the same reason. Vegetables, if properly cooked, are rich in soluble minerals, and also have plenty of bulk. A certain sanitarium, justly celebrated for its success in treating disease by attention to

diet, prescribes for some of its patients wafers made of a kind of seaweed with an unpronounceable name, found off the coast of China. They are about as palatable as wafers made of excelsior and sawdust. One time at a dinner I heard a lady offer a dollar to any man who would eat a whole wafer. Half a dozen entered the contest, but all failed, altho the wafers were not large and the men were all good sports. Why pay an extravagant price for such things when you can get the same results with delicious fresh vegetables, and the vegetables have food value besides.

To sum up the reasons for making a garden: First, economy at a time when the whole world has the greatest need of economy; second, it will furnish valuable mineral salts, and, in the case of some vegetables, protein and carbohydrates; third, it supplies in a most palatable way the need of bulk; and, fourth, it affords a delicious variation to your diet, and greatly simplifies menu planning. In addition to these excellent reasons, garden work is just as good out-of-door exercise as tennis or golf, and, to a true garden lover, more interesting.

Do you know a perfect garden should have its own musicians? Birds are generous in this way, and should be encouraged in every way possible. But there is another kind of music indispensable in a garden, and that is the happy humming of bees. What is more delightful than a warm June morning, when the roses are at their best? All the garden is full of promise, and the happy hum of the bees typifies joy in life and congenial work. And if your garden musicians produce more honey than you need, you are fortunate indeed, for the demand for honey this year is going to exceed anything ever known before. But keep plenty of honey for your own table. The April *Good Health* says, "A pound of cane sugar when taken into the body is converted into a pound of honey. But it takes four times as long to digest, absorb, and utilize an ounce of cane sugar as it does an ounce of malt sugar or an ounce of starch." In another place in this same article is this: "Cane sugar was never intended to go into human stomachs. Cane sugar is cattle food, not human food. It is found in the things that herbivorous creatures eat." If we believed implicitly everything written about foods in relation to health our diet would be restricted indeed. "What is one man's meat may be another's poison;" but, judging from my experience with the Puerden children, honey is the most wholesome sweet for children. If our children have ever been hurt by eating honey we have not known it. Not being particularly fond of

honey myself, I used to think the reason it never hurt the children was because it was cloying, and a very little satisfied. I have quite abandoned that theory. The amount of honey our two boys and their sister eat is appalling. It is always on our breakfast table in some form, and very often it appears at noon and at night too. At one time a doctor friend had stayed over night with us, and at the breakfast-table he remarked, after watching one of our boys help himself liberally to honey the third time, "I know a boy who is due to have a stomachache before night." Well, the boy had no pain then nor at any other time after eating honey. But let the children eat excessively of rich cakes, candy, or maple syrup, and headaches, indigestion or bilious attacks are quite likely to follow. A neighbor of ours, who is the mother of two healthy boys, confirms these statements.

Even more positive testimony as to the value of honey as food is contained in a letter from Mrs. Ona Folliart, formerly of Missouri, now living in Oklahoma, to the *Farm and Fireside*, copied by *Good Health*. She said that for three years her family of five, with an average of three hired men, found no difficulty in making use of from 800 to 1000 pounds of honey on the table each year, altho at that time she had no honey recipes. She said they used very little meat, and in the main honey took the place of meat, jellies, and preserves. She believes her family was healthier in the three years honey was used so abundantly than in the three previous years when they used meat liberally. Like Mrs. Folliart I believe in letting my garden musicians do a large part of my preserving. It saves a housekeeper many weary hours in a hot kitchen, and one never has to worry about the method of sealing. It cannot be improved upon.

Below I am giving menus for one day. Notice the meals will be inexpensive if you can gather the vegetables and pieplant from your own garden.

BREAKFAST.

Oranges; omelet with bacon curls; toast; honey; coffee, or honey cereal coffee.

DINNER.

Hot beef loaf surrounded by riced potato; brown gravy; stewed asparagus; radishes, green onions; one crust pieplant pie.

SUPPER OR LUNCH.

Baked rice with cheese; lettuce salad; honey gingerbread (Airline Honey-book); canned fruit.

BAKED RICE WITH CHEESE.

One cup rice boiled and drained; cup cheese cut small; cup white sauce; cup canned tomatoes; teaspoon honey; salt and pepper; buttered bread-crumbs.

Put the rice and cheese in oiled baking-dish; turn in the cold tomatoes sweetened slightly with the honey, and then the white sauce and mix. Season to taste. Cover with the buttered bread-crumbs and bake thirty or forty minutes.

HA V I N G purchased a suitable outfit, preferably for the production of extracted honey as outlined in Lesson No. 3, the next problem that confronts the beginner is how and where to get the bees. There are six different plans that may be mentioned: (1.) Buying a colony in an old box hive. (2.) Obtaining a colony from a bee-tree. (3.) Buying bees by the pound.

BEGINNERS' LESSONS

H. H. Root

LESSON NO. 4.—HOW TO START WITH BEES

with frequently too large a percentage of drone-cells. Nothing can be told about the queen, for she cannot be found until the colony is transferred into another hive. The transferring itself is a comparatively simple matter for one who has had some

in a poke. He doesn't know what he is getting, and, for that matter, neither does any one else. The combs are likely to be crooked,

especially if you try to use the old combs, is some job—too complicated for the average beginner.

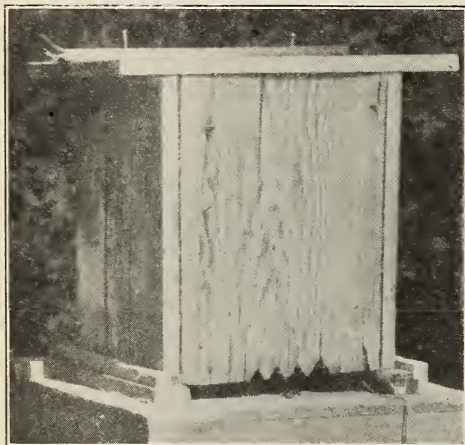


Fig. 1.—The outside of a box hive gives very little indication of what is going on inside. The colony is like a pig in a poke.



Fig. 3.—Transferring bees from a box hive, especially if you try to use the old combs, is some job—too complicated for the average beginner.

(4.) Buying a nucleus of a colony on combs. (5.) Buying a full colony on combs. (6.) Buying a swarm. While there are circumstances when any of these plans are satisfactory, not all of them are to be recommended for a beginner.

(1.) If a beginner buys a colony in an old-fashioned box hive he is buying a pig

experience, but a beginner ought to avoid tackling a job like this.

(2.) Cutting a bee-tree and transferring the colony therefrom is also considerable of an undertaking—a lot of fun if there is an old hand along to tell how, but not much fun if tackled alone by a beginner.

(3.) Buying bees in a combless package

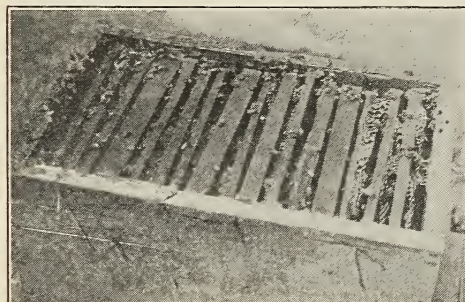


Fig. 2.—The combs are likely to be crooked, built together, and attached only to bars or sticks—therefore immovable.



Fig. 4.—Cutting down a bee-tree and transferring the colony to a hive is fun—provided you have some one along to boss the job.

is all right; but the mistake should not be made of buying too small a package. An experienced man can take half a pound of bees and build them up to a full-sized colony, the first season; but a beginner should take nothing less than a full pound. If drawn combs can be begged, bought, or borrowed, bees shipped in a combless package should be hived on such combs, and not on foundation alone. A queen should

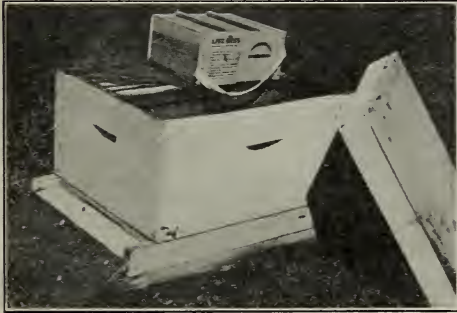


Fig. 5.—Buying bees by the pound is a good way to start, provided you don't get too small a package. Cut the wire cloth from one side of the cage and lay it flat on the frames. Put on an empty super, then the cover, and let the bees work their way down into the hive.

always come with the bees. A pound of bees needs about three combs, more being added as they are needed. Two pounds of bees should be hived on not less than four combs to start with.

(4.) Buying a nucleus—that is, a part of a colony on combs—is a little less risky for a beginner, altho such a nucleus costs



Fig. 6.—Buying a three-frame nucleus is a safe way to start, altho rather expensive.



Fig. 7.—If you buy a swarm from some near-by beekeeper, don't get a little dinky one like this, with only about a pint and a half of bees.

more, to be sure. In buying bees on combs it is not safe to take any man's word for the condition of the bees unless the man is known to be reliable. In fact, on account of the danger of getting disease, buying bees on combs should be avoided unless the breeder has a good reputation for honesty and square dealing.

(5.) If expense is not an item to be considered, the *easiest* plan of all is to buy a full colony from a reputable beekeeper.

(6.) In the majority of instances, perhaps the most satisfactory method of getting a start is

to buy a swarm—a good-sized one—from some local beekeeper. Arrangements should be made for the purchase of it in advance, the beekeeper to give notice when it issues. The beekeeper should hive it in a box, then the beginner can take it home and dump the bees before the entrance of the new hive filled with frames containing full sheets of foundation. No bees work with such energy as do those of a prime swarm; therefore the method of buying a swarm is, perhaps, the most economical and most satisfactory way of all.



Fig. 8. — Buying a good-sized swarm from a near-by beekeeper is the best way of all to make a start. One is enough to begin with.

SOMETIMES

and often
oftener the
beekeepers' sup-
ply house gets
all that is com-
ing to it and
more, as is prov-
ed by the post-

script to the following letter received by a supply-manufacturing concern located less than a thousand miles from where the Man-Around-the-Office sits as he writes this. Read it, if you can nerve yourself against its very emphatic language. Here it is (except that the man's real name is not given):

"Deer Surs:—The huny extrackter what i order-
ed sum time back came today and what the devul do
you send me a masheen without a crank. how in
hellcana man extrakt huny when there aint no
crank to turn the whurlig bizness inside that holds
them ther komes that the huny runs out of when
it whurls fast. now maybe you think i am a dam-
foole but my wife she to sed ther want no crank
and the two on us hadent aurtter make thesame mis-
take. now if you fellers dont no no more un send
out a masheen without a crank, you surtantly aurtter
be given hellunthadevul. when i spens my good
muny for a masheen an then cant use it when i get
it i have got to take it out on sumwun. now what
i want to say is to send that crank damkwick. what
is the good of a masheen with no crank is what i ud
like to no. nexttime you can keep yur damol
masheen. "hoping you are the same, i am
"EMMET BUMPUS.

"p. s.—dont send the crank. i found it in the
bottom of the box."

This is true, too. It just goes to prove that men can "fib" when they speak the truth and tell the truth when they "fib." It was at the Pan-American Exposition at Buffalo, fifteen years ago. O. L. Hershiser, as superintendent of the New York State honey exhibit had eight or ten colonies of bees (his own) in glass enclosures around the large outside windows of the second story of the Agricultural Hall. On the first floor, just inside the entrance door and below where the bees were domiciled, some enterprising American citizen was conducting a sweet-cider concession. With a handpress he produced sweet cider and pomace "while you wait"—and did a thriving business at so much per. There came a honey dearth, and Hershiser's bees all hands took to cider-drinking and pomace-chewing one flight down. They stung a few human competitors there, and scared a good many more. Ruin and wrath gripped the concession man. I guess they did—he was so mad he nearly had apoplexy. Got the superintendent of the building. Got his assistants. Got hard language carefully thought up. Then they all together went upstairs to the bee region. He would get those ding-blasted bees out of there by the great horn

AROUND THE OFFICE

M.-A.-O.

spoons, or know why. He talked just that way to the innocent, rufus-whiskered, mild-mannered beeman that Mr. Hershiser had in charge—

said the bees were stinging the life out of his customers, and already had stung the cider business to a fare-ye-well and—oh! he talked awful. "Those bees sting, that are troubling you, do they?" mildly asked the rufus-be-whiskered bee-guardian. "Sting? I guess they sting," said Mr. Concession Man. "They would shoot rifles at us if they had them." "Ah!" said the mild man, "then they can't be *these* bees, for *these* bees don't sting," and he reached into a well-filled drone-trap over the entrance to one of the colonies, took out a handful of the he bees, rolled several on his face, crushed them in his hand, got the concession man to do likewise—in short, convinced the visiting war committee that "*these* are stingless bees," and the erstwhile wrathly concession man and his crowd went away perfectly satisfied, to hunt their heads off for the sure-enough stingers that must come from somewhere else. As they went downstairs filled with wonder and stingless notions, the innocent beeman slapped his leg, undid his features, and said to Ernest: "*These* bees are *stingless*." Sure enough, *those* bees were stingless. He had "fibbed" and he hadn't, hadn't he?

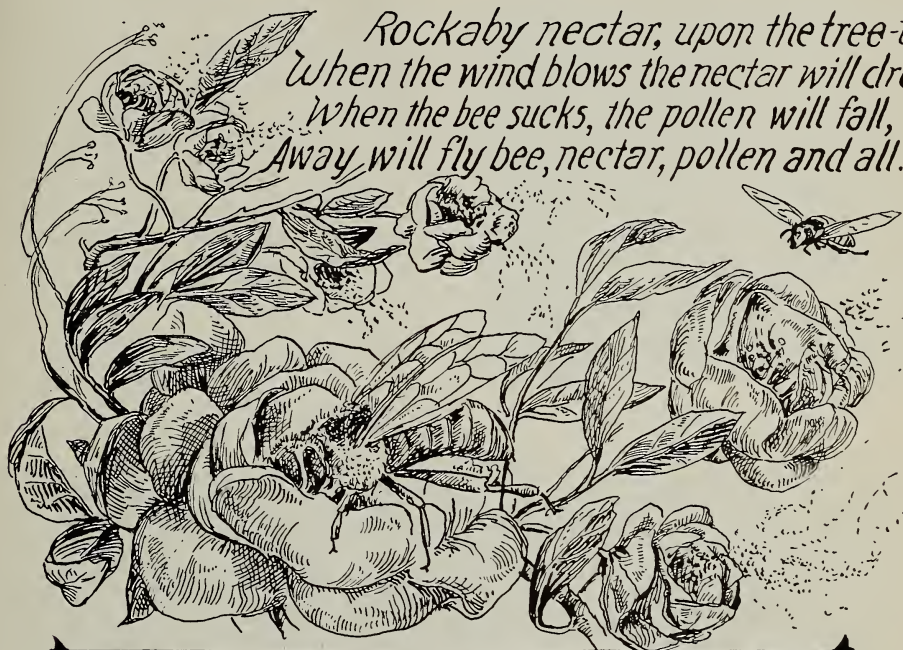
Men can get so far apart from each other on the temperance question that they can't comprehend each other's language, as the following incident occurring in our office shows. Manager J. T. Calvert is as "dry" as Mr. A. I. Root. He won't stand for "booze" anywhere nor at any time. He's just straight poison on it. Well, another man, temporarily doing some special accounting work in the office, chanced not to be so poisonous on liquor as John is. In fact, he was accustomed to take a good many personal chances on this form of poison. The very first day he was in the office John got a whiff of his exuberant breath—right in our office, mind you—and, in a surprised undertone and close to his ear, said: "Do you drink?" With a grateful look of pleasurable anticipation the special figure expert spoke right up, saying: "I don't mind. What have you got?"

Hully gee! John got his breath back finally, and eventually recovered. The other man has long since gone hence.

Mother Bee NURSERY RHYMES

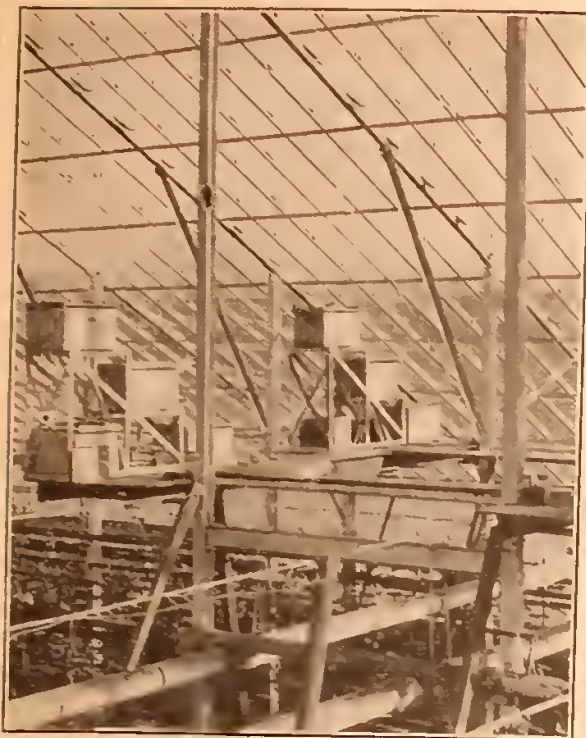
By M.G.P. (Mother Goose Plagiarized.)

*Rockaby nectar, upon the tree-top,
When the wind blows the nectar will drop;
When the bee sucks, the pollen will fall,
Away will fly bee, nectar, pollen and all.*



*Hey, diddIE dunny, the comb and the honey
The Bees swarmed out of the hive;
The Beekeeper groaned, to see such sport,
And the Queen he caught alive.*





A part of the "apiary" located above the wires some twelve feet from the ground.

WE had hoped to begin the report this month of the great mating experiment by saying, "This can be done!" but we shall have to postpone making any positive statement one way or the other until the next issue.

As outlined in the last number, nuclei with drones and drone brood were received from the South about the first of April. Contrary to our expectations, not only the drones that were hatched in the greenhouse, but also the mature drones in the nuclei when they were received, flew naturally, returning to their own hives without difficulty. They have now been flying freely for more than three weeks, and, so far as we are able to determine, the mortality is no greater than it would be out of doors, in spite of the braces and wires. At any rate, there are hundreds of great noisy drones buzzing contentedly about that indoor acre of cucumbers. To be sure, the first day or two they bumped against the glass somewhat; but they soon stopped this and behaved even better than we had anticipated. During these first few days quite a good many helpless fellows were to

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CAN THIS BE DONE?

The First Few Queens Were Not Mated, but Indications are Good for the Final Success of the Plan

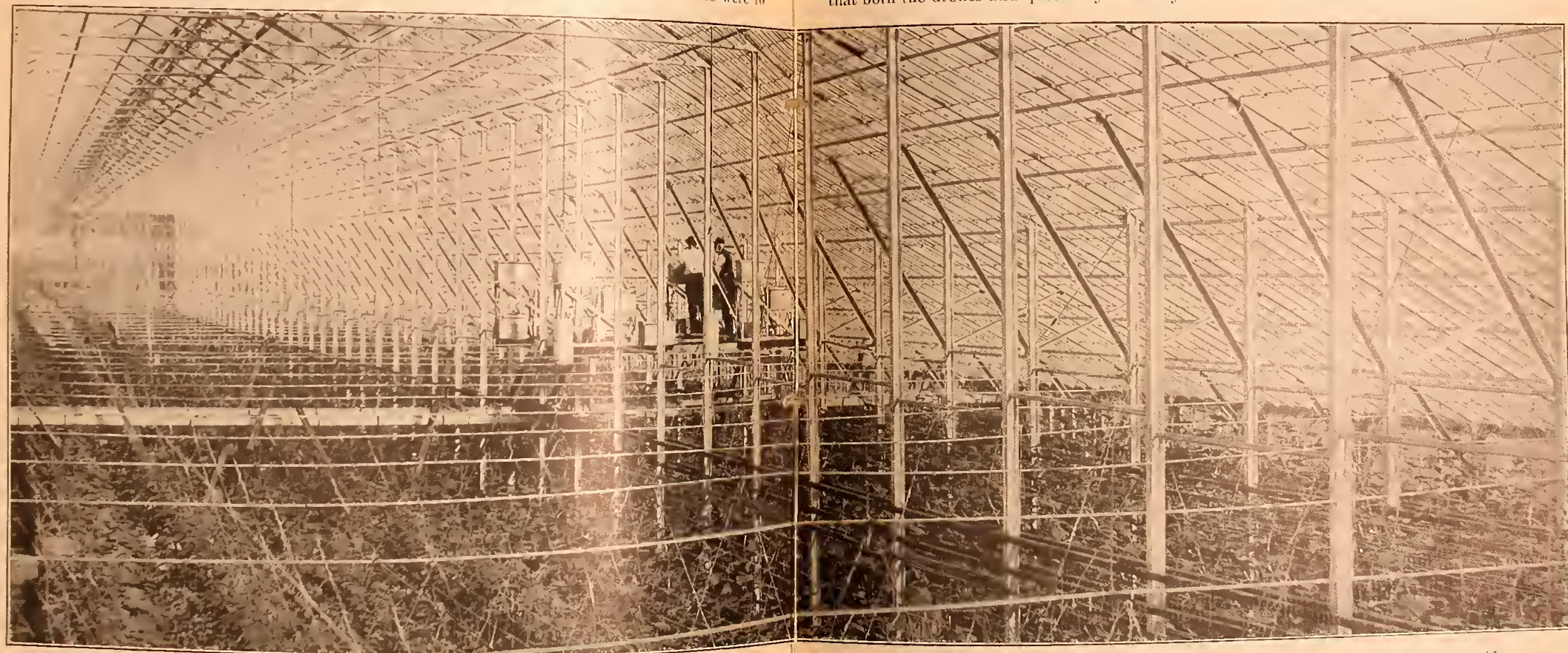
By the Editors

MAY, 1917

raised from cells started in the queenless nuclei on the way from the South. Undoubtedly the cells were chilled, for the virgins that hatched in due time were quite small, and some of them had defective wings. They took flights, however, as unconcerned as tho there were no glass between them and the blue sky. In one instance, while we were watching an excited virgin on the comb, she suddenly took wing. Watching closely at the entrance of the hive we saw her come back a few moments later and enter, thus proving conclusively that she must have flown before and marked the entrance to her own hive. None of these first queens have begun laying. Several disappeared, and one we found dead on the floor-board. Whether they were structurally imperfect, as seems probable, or whether they failed to mate and return, we cannot say. So far all we know is that both the drones and queens fly normally.



Looking down between two of the rows of cucumber vines growing seven to nine feet high.



General view in the large building during the height of the cucumber season. Several colonies are needed to insure perfect pollination of the blossoms. The central part of the building about thirty feet wide and over six hundred feet long is practically unobstructed by posts or wires, and yet the drones may be killed off pretty rapidly by striking posts or wires at the sides.

THE Kansas legislature has recently appropriated \$5000 for inspection of apiaries in that state. This aid to Kansas beekeepers is badly needed. Thus the beekeepers' cause goes marching on in the Sunflower State as well as almost everywhere else.



Editors

Mr. E. L. Sechrist, of Fair Oaks, Cal., is now employed as an assistant to Dr. E. F. Phillips at Drummond, Md., in the U. S. Bureau of Entomology.

The Northwest Missouri Beekeepers' Association has been organized at St. Joseph, Mo., with A. V. Small as president, and L. E. Altwein, secretary-treasurer. Prof. Haseman, of the University of Missouri, who is secretary of the Missouri State Beekeepers' Association, was present at the organizing meeting and delivered an address.

The department of Agriculture of British Columbia estimates that province's honey crop of 1916 at 240,000 lbs. This was a decided increase over the crop of 1915 despite a very unfavorable season. Thru the efforts of Mr. William Hughes, Victoria, there was organized early in the year the Beekeepers' Association of British Columbia, and already one-tenth of all the beekeepers in the Province are on its roll of membership. It has made an excellent beginning, and is doing much to standardize hives, packages, and methods.

Hamlin B. Miller, secretary-treasurer of the Iowa State Beekeepers' Association, is the real thing in the line of enthusiasm and hustle. He approximates walking dynamite. "Bee Pep," Vol. I., No. 2, dated at Marshalltown, Ia., March, 1917, contains a concise report of the proceedings of the fifth annual convention of Iowa beekeepers, together with much pithy comment on the beekeeping business in general and the Iowa State Beekeepers' Association in particular. Mr. Miller has made this association pretty nearly (if not quite) the liveliest beekeepers' organization under the sun.

Good news from Iowa. The legislature of that state recently passed a bill providing for bee inspection, regular instruction, and both short-course work and extension work

at Iowa State College. This bill was passed despite the fact that another bill was introduced into the Iowa legislature to repeal all laws

pertaining to bee culture. Mr. F. C. Pellett is entitled to much credit for helping secure this new bee legislation in Iowa.

Mr. B. F. Kindig, formerly one of the state inspectors of apiaries of Indiana, has been appointed as state inspector of apiaries for Michigan, taking the place of F. E. Millen, who resigned to accept a position in Iowa State College, at Ames, Iowa, in the Department of Entomology. Mr. Kindig is making good in the state of his adoption. He has prepared a number of valuable press bulletins on bees, and the control of bee diseases in particular, which he has sent out to between 650 and 700 papers published in Michigan. The beekeepers of Michigan will be interested in special bulletins 58, 64, and 76, dealing with treatment of European foul brood, and which may be secured free from the Michigan Agricultural Experiment Station, or by addressing State Inspector Kindig at East Lansing, Mich.

On page 283, in our "Just News" department for April, appeared an item to the effect that bees in hives or in nuclei containing combs, if shipped into Ontario, Canada, would be quarantined at the port of entry for a period of not more than nine months.

Bees in pound packages without combs were to be exempt from this detention provided they were accompanied by a satisfactory certificate from a state or provincial inspector declaring them to be free from disease. We have been advised by the authorities that this is a mistake; that bees can be shipped into Canada on or off combs with or without an inspector's certificate. GLEANINGS received a request that such notice be inserted. We will endeavor to locate the original source of information and see what was back of it all. In the mean time our apologies are due to the pound-package men as well as to the beekeepers of Canada.

A letter from Louis B. Hochstein, of Paradero de Mangas, Province Pinar del Rio, Cuba, informs us of the death of his father, C. F. Hochstein, who was one of the most successful producers of extracted honey in the island republic. He died

March 9, aged 64 years. He was a man of exceptionally lovable character as well as a most resourceful beekeeper. In 1898, Mr. A. I. Root visited him in his Cuban home, when a fast friendship between the two was formed, and later Mr. Hochstein contributed a number of articles to GLEANINGS.

ANOTHER REPORT ON WINTER LOSSES, PRESENT CONDITION OF BEES, AND HONEY PROSPECTS.

Below are printed answers, from widely different parts of the country, to questions concerning: (1) winter losses in the locality of the correspondent; (2) strength of colonies and stores; (3) likelihood of colonies being ready for the honey-flow; (4) likelihood of the honey-flow being ready when the bees are ready; (5) condition of principal honey-producing plants; (6) rainfall. The answers printed below were written from the 12th to the 16th of April. They show some decided changes in certain sections of the country as compared with reports of a month ago. Conditions are now apparently much brighter in Michigan, New York, and the white-clover section generally than a few weeks ago. The Texas outlook seems to be poor because of unusual drouth; and conditions in California and on the Pacific coast generally appear to be very far from satisfactory. Here are the reports from our correspondents briefly summarized:

CALIFORNIA, reported by P. C. Chadwick, Redlands.—Winter loss hard to estimate but has increased greatly during the last two weeks; strength of colonies good where abundance of stores were available, but elsewhere poor and there has been much loss during the past ten days from shortage of stores; colonies will be ready for the honey-flow when on in cases where sufficient stores were available for breeding but not under other conditions; honey-flow from the orange will be on time and ready for the bees but sage and wild flora will be late; as to condition of principal honey-producing plants, orange good but wild flora fair to poor; there has not been enough rain. There has never been a season for years when so much stores has been consumed between February 1 and April 10. Many colonies with plenty February 1 are now destitute save for what they gather from day to day. A week's bad weather would be fatal to many colonies.

COLORADO, reported by Wesley Foster, Boulder.—Winter loss 10 to 15 per cent; condition of colonies as regards strength and stores, in good shape and probably enough stores; colonies likely to be ready for the honey-flow and the honey-flow will be ready by the time the bees are; principal honey-producing plants are in good condition; alfalfa and sweet clover are all right in Colorado; there has been sufficient rain thus far.

CONNECTICUT, reported by L. Wayne Adams, Hartford.—Winter loss about 30 per cent; colony strength and stores good; not all colonies will be ready for honey-flow and honey-flow will not be ready when the bees are; condition of principal honey-producing plants good; too early yet to tell condition of clover; fair amount of rainfall.

FLORIDA, reported by E. G. Baldwin, Deland.—Winter loss perhaps 10 per cent, a little heavier than usual owing to lack of stores in spring; colonies strong in bees but stores diminishing rapidly; never have known bees to breed more rapidly than this winter and early spring; colonies will be ready all

right for honey-flow, but question when the honey-flow will come as the freeze did much damage; scrub palmetto is already begun in southern part of the state and will be in flower in middle of the state within two weeks or thereabouts, and bees are ready for flow now; as to main honey-producing plants, orange was frozen as far south as Tampa and only scattering bloom south of there; scrub palmetto looks fine and blooming earlier than usual; mangrove in the water is not badly hurt, tupelo ought to yield well as the trees are not hurt by the cold; rainfall very deficient over the entire state and badly needed now.

IOWA, reported by W. P. Southworth, Sioux City.—Winter loss of bees 50 per cent hereabout; colonies surviving are in normal condition but short of stores; bees in the hands of specialists that have been wintered in cellars are generally in first-class condition and well supplied with stores; bees likely to be in excellent condition for the opening of the honey-flow; but on account of spring being late prospects are that the honey-yielding plants will be abundant and will bloom by the time the bees are ready; white clover is not showing much at present and too early to estimate condition of that plant; abundant snow during the winter and plenty of spring rain; accordingly clover crop should be good.

ILLINOIS, reported by James A. Stone, Springfield.—Winter loss perhaps 5 per cent; condition of colonies and amount of stores better than average; colonies will be ready for honey-flow, but there is always a shortage between the fruit bloom and the clover; condition of main honey-producing plants a little less than average apparently; clover is looking fairly well; there has been enough rainfall.

INDIANA, reported by John C. Bull, Hammond.—Three to five per cent winter loss; colonies strong and plenty of stores; the colonies will be ready for the honey-flow and the honey-flow will be on time for the bees; condition of clover nothing extra and other plants about normal; none too much rainfall.

IDAHO, reported by F. C. Bowman, Idaho Falls.—Percentage of winter loss yet in doubt but estimated to be 50 per cent; condition of colonies as regards strength of stores fair; colonies will be ready for the honey-flow and the honey-flow will be on time for the bees; too early yet to state the condition of the honey-producing plants; rainfall has been sufficient.

KENTUCKY, reported by Virgil Weaver, Falmouth.—Loss of healthy bees about 15 per cent; strength of colonies normal and stores abundant; colonies will be ready for the honey-flow, but a very late spring will have a tendency to delay the blooming of the clover unless the weather is excessively warm from now on; sweet clover and aster are normal, while white clover is short, but the excessive moisture we are now having is making it do its very best; reports from central Kentucky where there is nothing but white clover for the spring flow indicate good prospect for a big white-clover flow.

MASSACHUSETTS, reported by H. H. Jepson, Boston.—Winter loss about 5 per cent; colonies not very strong; stores rather short; season rather late, but colonies will probably be ready for the honey-flow; clover likely to yield a good honey-flow; had an average rainfall.

MICHIGAN, reported by E. M. Hunt, Lansing.—Winter losses not nearly so heavy as at first supposed, as present indications would seem to be that they will not be over 10 to 20 per cent; bees apparently strong for this season of the year and stores generally in pretty good shape; bees will be ready for honey flow if weather is favorable during soft-mappable bloom and fruit bloom a little later; clover apparently in fair condition; rainfall about one-half normal since January 1; weather still remains cool.

MISSISSIPPI, reported by the Penn Co., Penn.—Winter loss about 3 per cent; condition of colonies generally good with plenty of stores; colonies will be in fine shape and ready for honey-flow and the honey-flow will be ready when the bees are ready; condition of main honey-producing plants not the best as some were winter-killed; clover not looking so good, about 50 per cent winter killed; 25 inches of rainfall since January 1.

MISSISSIPPI, reported by the Stover Apiaries, Starkville.—Bees are very backward and making very little headway, also have used up worlds of stores and not gained much; season here is very

backward, being about a month behind, continued cold up to this time, April 14.

MINNESOTA, reported by E. L. Hofmann, Janesville.—Loss in cellar wintering about 2 per cent; colonies are strong with a good supply of stores, and with proper management should be in good condition for the harvest; basswood is about due to give us some surplus again and clover is in excellent condition, but of late all indications are for dry weather.

NORTH CAROLINA, reported by Walter Flemings, Greensboro.—Winter loss 10 per cent; strength of colonies is fair but many colonies short of stores; the colonies generally will not be ready for the honey-flow altho the experienced man will have his ready; the honey-flow will be even too early for the bees; condition of principal honey-producing plants about 85 per cent except clover, which is not a good stand and backward; there has been too much rainfall.

NEW JERSEY, reported by E. G. Carr, New Egypt.—Percentage of winter loss 5 per cent; stores rather short, strength of colonies medium; doubtful if colonies will be ready for the honey-flow and honey-flow likely to be ready before the bees are; condition of principal honey-producing plants good and clover looks good; enough rainfall.

NEW YORK, reported by F. A. Salisbury, Syracuse.—Winter loss probably not over 15 per cent; strength of colonies and stores good; colonies are going to be ready for the honey-flow and the honey-flow seems sure to be on time for the bees; principal honey-producing plants are in normal condition; rainfall sufficient.

OHIO, reported by E. R. Root, Medina.—Winter loss about 10 per cent; strength of colonies fair, altho the weak suffered severely during the winter and late spring; stores appear to be abundant; colonies likely to be ready for the honey-flow, and the honey-flow probably will be ready when the bees are ready; condition of the main honey-producing plants good; condition of clover fair; there has been sufficient rainfall.

OKLAHOMA, reported by F. W. Vandemark, Stillwater.—Winter losses 5 per cent; condition of colonies as to strength and stores good; colonies will be ready for honey-flow and honey-flow promises to be ready for the bees; condition of principal honey-producing plants good; condition of sweet clover and alfalfa good; fine rain falling now.

OREGON, reported by E. J. Ladd, Portland.—Percentage of winter loss not over 10 per cent; condition of the colonies regarding strength and also stores, light in both; colonies are not likely to be ready for the honey-flow; condition of the principal honey-producing plants was never better; cover looks excellent; have had too much rainfall.

ONTARIO, reported by J. L. Byer, Markham.—Winter loss in this locality very light, probably about 5 per cent, and reports from other parts of Ontario to date indicate a very light mortality to be the general condition of the bees in this province; majority of colonies are strong and nearly all have plenty of stores; warm weather needed, and upon how soon this comes depends whether bees will be ready for clover when it blooms; season abnormally cold to date; bees had first cleansing flight on March 25 and 26, and since that time they have flown on only two days and only for about an hour or so at a time; heavy freezing every night and cold raw winds thruout the day; clover looked fine when the snow left but is being hard tried now; alsike likely to be in fair condition.

PENNSYLVANIA, reported by H. C. Klinger, Liverpool.—Percentage of winter loss is less than 5 per cent; colonies are in good shape as to bees and stores; owing to cold weather the last few weeks brood-rearing has been retarded and also vegetation and so the colonies may be ready for the honey-flow when it comes unless weather conditions force the fruit and clover blossoms ahead; clover has not been making any headway but there appears to be a good stand; rainfall has been sufficient but cold weather has held up everything.

TENNESSEE, reported by Mrs. Grace Allen, Nashville.—In this immediate section winter loss in almost nothing; colonies strong with fair stores; late cold spring has retarded brood-rearing somewhat but hope to be ready for honey-flow; main honey-producing plants in this locality look promising with exception of crimson clover and alsike which were winter-damaged; buds of locust are

forming and ought to be out in about two weeks; white clover shows splendid indications but other clovers have been injured by the trying winter; enough rainfall and to spare.

TEXAS, reported by F. D. Paddock, College Station.—Winter loss in all sections of the state comparatively light, but there has been a heavy spring loss, due in some instances to lack of pollen; most of colonies now in good shape are very light on stores; bees will be ready for any honey-flow that comes, but the honey-flow will be short on most of the staple honey-plants on account of an excessively dry winter; have just had a rain over the entire state and this will help considerably, but it is impossible to tell at this time just what extent this rain will affect the principal honey-plants.

UTAH, reported by M. L. Skougard, Parowan.—Winter loss 30 per cent; bees that have wintered are gaining fast and will be ready for main honey-flow; much work to keep colonies supplied with enough stores to last until fruit-bloom, as they have consumed more stores this winter than for many seasons past; clover is starting nicely, and the fruit-bloom promises well as a honey-producing source; not as much snow in the mountains as at first thought, but enough to keep our streams up this summer.

VERMONT, reported by J. E. Crane, Middlebury.—Winter loss 2 per cent; strength of colonies and stores good; looks as if colonies would be ready for honey-flow and honey-flow will be on time; condition of main honey-producing plants good; clover looks well; plenty of rainfall; outlook for a good crop of honey so far as bees and clover are concerned excellent, but have noticed that when everything is satisfactory or at the best in early spring we are more likely to meet with failure than when it looks less promising.

WASHINGTON, reported by G. W. Bowlin, White Swan.—Bees have wintered finely, few reporting as large as 10 per cent loss, while many have lost but one to three per cent.

WISCONSIN, reported by N. E. France, Platteville.—Winter loss 2 to 5 per cent; condition of colonies as to strength and their stores best for years; uncertain as to colonies being ready for the honey-flow, as cold nights retard brood-rearing; main honey plants in good condition; clover in this locality looks good; rain is now needed.

[Received too late for alphabetical arrangement.]

COLORADO, reported by J. A. Green, of Grand Junction.—Winter loss probably 15 per cent; colonies a little below the normal in strength; plenty of stores; the colonies will be ready for the honey-flow, and the honey-flow will be ready for the bees; principal honey-producing plants in good condition; there has been enough rainfall.

GEORGIA, reported by L. W. Crovatt, Savannah.—Winter loss, 3 per cent; colonies in fine strength and general condition; small supply of stores at beginning of early honey-flow; severe freeze set back the early honey-producing plants, but flow from titi has been fairly satisfactory, and beekeepers are hopeful concerning the flow from gallberry, which begins early in May; condition of main honey-plants regarded very favorable; there has been abundant rainfall.

BRITISH COLUMBIA, reported by Williams Hugh, Victoria.—Thruout the wide area of British Columbia, with all its diverse climatic conditions, the coming of spring has been delayed from five to six weeks, and more rain than usual has fallen over the lower mainland and Vancouver Island, which fact appears responsible for an increase in the loss of colonies: loss probably 25 per cent, due to insufficient and improper stores; colonies that were well packed down for the winter with plenty of stores will be ready for any honey-flow; there are no great areas in this district where it can be said there are "main honey-producing centers," but there is a succession of honey-producing plants always; the small areas devoted to the culture of clover are in good condition; there has been more rainfall than usual.

H. B. Murray, of Liberty, N. C., breeder of Italian queens, writes that he feels safe in saying that the past winter has been the hardest on bees that has been experienced in North Carolina for twenty or thirty years, and that there has been much

spring dwindling. He says that after having visited both the eastern and western parts of North Carolina he finds bees in very poor condition as a rule, altho there are some good colonies that had extra care and exceptional strength of young bees last fall, but in general he says it has been a very rough winter on bees in the South.

A. B. Marchant, of Marchant Bros., Union Springs, Ala., writes that the weather conditions and bee conditions have been so extremely bad in the South during February and March and the present month that most bee and queen breeders will be unable to fill early orders, and that the pound-package business has been very hard hit. He says that bees in the South were apparently in good condition February 1, but since then the weather and honey-producing-plant conditions have been almost as bad as possible for them to be. He puts in a strong plea for patience and consideration from the patrons of the southern bee and queen breeders.

W. D. Achord, of Fitzpatrick, Ala., under date of April 18, writes the colonies are not so strong as usual at this time of the year, and that he has been refusing orders for packages for several days, but is trying hard to ship promptly. He says that some shipments may have to be delayed for several days; and as this appears to be his worst fear, the situation in Alabama does not seem to be alarming.

The Rocky Mountain Bee Co., located at Billings, Mont., reports the loss of bees in the eastern part of the State as being about 50 per cent.

Thru the efforts of the A. I. Root Co.'s traffic manager, with the co-operation of others interested in the shipping of comb honey in the territory in which the southern classification governs, the committee at their last meeting, held in March at New Orleans, acted favorably on our application. As soon as the new rule goes into effect, which will doubtless be in June, altho we are not yet informed of the exact date, comb honey may be shipped in southern-classification territory at a considerably lower rate than in effect heretofore, but with no special rate for carload lots. These rates will be the same as those in effect in western territory. To take full advantage of the lower rates it is necessary to pack the cases of comb honey in carriers with at least four inches of cushioning material underneath. Carriers should not weigh over 258 lbs. each, gross, and should have handles.

In our January issue, pages 30 and 31, we reviewed the case between the beekeepers and the Coniagas Reduction Co., smelters, that was tried before the Supreme Court of Ontario, Canada. After hearing all the evidence on both sides, his Lordship, Judge C. J. Falconbridge, rendered a decision in favor of the smelter owners. His judgment as rendered is as follows:

Plaintiffs have to prove to the satisfaction of a judge or jury that the loss which they have suffered was caused by the wrongful acts of defendants, viz., by the emission from their works of noxious vapors or substances which killed the bees. It is not sufficient for me to find that the destruction of the bees might have been—and, indeed, probably was—caused by the works of defendants. The question is, Has that been proved? There seem to be too many elements of doubt for me to resolve them all in plain-

tiffs' favor. The plaintiffs have failed to prove their case to my reasonable satisfaction, and their action must be dismissed with costs. Fifteen days' stay.

It is apparent that the judge believed that the bees were killed by the noxious gases from the smelters, but because the fact was not proved to his "reasonable satisfaction" he dismissed the action with costs. There were nine other actions against the Coniagas Reduction Co., that were also dismissed at the same time. While we do not presume to question the rightfulness of the judge's decision, it may mean the wiping-out of the beekeeping industry in and about a considerable area around the smelters not a great way removed from St. Catharines. The territory in question comprises some of the best fruit and garden area on the continent. It remains to be seen now whether the elimination of bees will not ruin the fruit interests as well.

The nineteenth semi-annual session of the Panhandle Beekeepers' Association was held April 11 at Wheeling. Officers elected were as follows: Pres., Will C. Griffith, of Elm Grove; Vice-president, A. W. MacMasters, of Jacobsburg; Secretary, John Rude, of Bellaire. Members of this association are very optimistic as to the outlook for the coming season. Bees wintered well there, due to the excellent crop of clover of last summer. Preliminary plans were made to hold the annual outing of the members and their families the coming summer. Mr. Griffith, president of the association, is a very ardent beeman, and is doing much good to the bee and honey cause in the Panhandle country. If there were more such driving and enthusiastic beemen in every beekeeping community, the bee and honey business would soon be on the high and important plane that it rightfully may claim.

The United Honey-Producers' Association, by its president and secretary, Messrs. Geo. J. Brown and Geo. W. Williams, have submitted to its Board of Control a proposition that the beekeepers of the United States give their best efforts to procuring 10,000,000 lbs. of honey, or any part thereof, for the use of the military forces of the Government. In submitting this proposition to the U. H. P.'s Board of Control, the officers of the association say:

In view of the fact that the world-wide war is demanding maximum production of food at the least possible cost and the utmost conservation of energy-producing elements, the beekeepers of the United States desire to add their quota to the general supply of available foods. The recent favorable experience of the European armies in the trenches shows the high value of honey, at a minimum of cost. Our army and navy are made up of the flower of our youth, and they must have the best.

H. G., Ontario.—Is it true that a queen will not go into an upper story and lay when the frames are cross-wise or at right angles to those in the lower story?



A. As Mr. R. F. Holtermann, of Ontario, uses twelve-frame hives that are square, and has tested out this proposition, we referred it to him for answer. His reply is as follows:

"No, it will not be a sure way to keep the queen in the brood-chamber; but it does have a tendency to keep the queen below, because the passageway is broken. I have used such supers, and nevertheless am using queen-excluders, and do not consider them as an ornament but a necessity. Then, too, we must remember that few beekeepers have their surplus combs all worker comb; and no drone comb in the super is safe from the queen unless she has enough in the brood-chamber to supply the ambition of the queen and colony. No, I would not depend upon that way to keep the queen in the body of the hive. Again, ventilation is checked very much in the continuity of the passages between the combs of the colony." R. F. H.

C. W., Oregon.—I lost two stands of bees last winter—not enough bees, and very cold weather at times. The combs are moldy. There is mold on some of the honey. Could the honey be used as food? Would it be safe to feed to bees?

A. You can use the combs on which the bees died, giving them to other bees. The fact that they are molding would not render them unfit for the purpose. The bees doubtless died because of insufficient protection and not because the food was inferior.

C. H. K., Ohio.—I have a lot of combs of honey candied hard. Can you tell me how to extract it without melting the combs?

A. There is no way that you can remove the candied honey from the combs except to soak them in warm water after uncapping and then put them in an extractor. After that you can give them to bees and they may remove the honey and they may not. We would use the combs for strengthening up weak colonies by moistening them in water, and you will find they will be excellent for brood-rearing in the spring. If you use the honey in this way they will extract it; but in order to prevent the granules from dropping down on the bottom-board and being lost, it will be necessary to wet the combs occasionally in warm water.

W. M., Ohio.—1. About what time should brood-rearing be started in Ohio—near Dayton?

2. When is it safe to open the hives for examination in the spring?

3. When does the honey-flow start, and what flora furnishes it?

4. What furnishes the early pollen?

A. 1. Brood-rearing may start in the vicinity of Dayton, Ohio, as early as the first

of January, but usually not much before the first of March. At that time there will be some eggs laid and a little brood will mature, but not much sealed

brood will be found before the first of April, and then in little patches about as big as one's hand. Something will depend upon the size of the colonies. The larger the colony the earlier the brood will be found and the more of it.

2. A hive may be opened up if it is outdoors at any time when it is warm enough for the bees to fly; but there should not be very much manipulation of a colony of bees before the first or middle of April, and then only to supply it with sufficient stores if they are running short.

3. In your locality the honey-flow would start somewhere about the first of June.

4. Soft maple furnishes about the earliest pollen. A good deal is secured from dandelion and fruit-bloom, especially early cherries and peaches.

C. G., Illinois.—1. What is the value of black or thorn locust as a honey-yielder?

2. How many stands of bees would 75 black-locust trees support?

3. How far will a bee fly for honey?

A. 1. Black locust, where it grows, is usually regarded as a good honey-yielder. It comes quite early in the season, and yields considerable honey. But there are not enough trees, usually, in a locality to yield any considerable amount of surplus. For that reason locust honey is seldom or never seen in the markets; but, like the honey from fruit-bloom, it is invaluable for building up colonies in the spring and supplying them with stores until clover comes on later.

2. It would be impossible to answer this question, as there are no reliable data available; but 75 locust-trees would give quite a boost to five colonies. If there were 100 colonies in the locality we should expect a little honey in the hives, but not enough to make any appreciable showing.

3. This is a mooted question. Very often bees will not go further than a few hundred yards from the hive. If there is plenty of flora available in a short distance they will not go any further than is necessary. It quite frequently happens that bees do not go more than half a mile; but it is not uncommon for them to go two or three miles. Much depends on the lay of the land, the direction of the wind, and the amount of flora available in the immediate vicinity of the hive. Bees have been known to fly even ten miles across a body of water for nectar; but they will not go that far over land.

W. H. H., Pennsylvania.—1. Would it be proper for me to requeen in the spring or in the fall?

2. Would I lose on the honey crop by doing it in the spring?

A. 1. It is usually cheaper to requeen in the fall. In the spring they are high-priced. Moreover, a colony will winter better with a young queen than with an old one; but if a colony is queenless in the spring it should be requeened, of course. Sometimes an old queen shows that she is failing, and then lays only a few eggs. When this condition is found she should be replaced or else her colony be united with a weak colony having a good queen.

2. No. On the other hand, you would gain, providing the queen already in the hive was inferior or failing. To requeen does not necessarily cause any serious interruption in brood-rearing. In fact, we make it a practice to remove one queen and cage another at one opening of the hive. Usually 48 hours will compass the change of a queen-mother.

H. W. K., Pennsylvania.—When is the proper time to commence to feed bees in spring in order to build up good strong colonies? What do you advise feeding, and what quantity? What kind of hive is best for this section for comb honey where the bees are wintered out of doors?

I have ten colonies, and wish to get them in condition to produce all the fancy comb they can this season.

A. It is not advisable to feed bees liquid syrup much before fruit-bloom. If bees are running short it is advisable to give them a comb of stores from some other colony that can spare it, or a slab of candy that can be laid up on top of the frames. Any liquid food given them in March would cause them to rush out to the fields and many of them be chilled and not get back. If a colony is short of stores it ought to have anywhere from five to ten pounds of syrup to carry it along until the first honey-flow comes in.

For your locality, if you wish to winter outdoors we recommend outdoor winter cases or double-walled hives.

P. B., Minnesota.—How can one tell a queen from a worker-bee in swarming time?

A. During swarming time a queen-bee is very much larger than ordinary worker-bees. The difference between the head, shoulders, or thorax, is not very marked; but the main difference is in the appearance of the abdomen, which is much larger and longer.

J. R. L., Pennsylvania.—Last season one of my colonies seemed to be outstripping all others in storing honey. By the middle of June they had a super two-thirds full. The others had done but little in their supers; in fact, our honey-flow seldom begins here before the middle of June. I noticed that this particular colony had a large excess of drones; and as I wanted to make this colony a prizetaker I used a trap for several days and caught off all drones. I know that drone comb should not have been there. Well, from that time on they sulked and never put another pound of honey in the super. About the latter part of July it swarmed. We know bees will kill off their drones when a flow of honey ceases. Could it be possible by catching off the drones at some particular time to cause a colony to feel that the honey-flow is over?

A. It not infrequently happens that the progeny of one queen will far outstrip the

progeny of all other queens in the same yard. When a queen goes away ahead of the rest she should be used for breeding, because many of her daughters will be very apt to follow her lead in the matter of honey production.

We hardly believe that the removal of the drones had anything to do with the stoppage of the honey-flow. It was a mere coincidence—that is to say, the honey-flow had begun to let up about the time that you applied the traps to catch the drones.

H. C. L., Illinois.—I have been using the large Holtermann quadruple winter cases; but I have found that my bees have been drifting. One colony in one side of the case will be considerably weaker than the other with the result that the bees get mixed during their playspells. What should I do to overcome this?

A. Equalize by taking from the stronger one a frame of hatching brood occasionally. If thru the process of drifting the strong one has most of the bees the surplusage may be shaken into the weak one if done immediately. If not we would give the unsealed brood to the strong one and the hatching brood to the weak one. Keep on giving it hatching brood from the other until their strength is the same.

U. A. S., Kentucky.—How can I distinguish the playspells of my bees from robbing?

A. The demonstration in front of the entrances in either case is much the same; but a beginner may make sure that a playspell will subside in a few minutes, while a genuine case of robbing will grow continually worse. When the bees are having a general playspell there will be no bees struggling against each other as in the case of robbing; but a playspell at its height very often, even to a veteran, looks like a case of robbing where the colony has been overpowered and the inmates of the hive are putting up no defense. Where one is uncertain, if he will wait just a few minutes he can easily decide which it is. If a playspell it will subside in a very few minutes.

F. R. N., Alabama.—My neighbors complain that my bees are driving the cattle away from their watering-troughs.

A. If there is no natural creek or spring near by, it is advisable to place in the yard a tub or pail of water having floats in it. If the water is sweetened a little at the start, the bees will soon learn its location.

L. B., Illinois.—Does the Illinois law forbid putting beehives close to a country road? If so, how close can I put them to the road?

A. There is no general state law anywhere, so far as we know, that forbids putting bees close to a country road; but as a matter of precaution, we would advise setting the bees back a hundred feet, more if it is practicable. If the bees can be located on a hill so that the line of flight will be above the traffic of the road, they can be much closer, but it is a good rule to put bees as far away as possible from a common highway.

GLEANINGS FROM THE NORTH, SOUTH, EAST, AND WEST

THE first examination of our hives disclosed

a discouraging number of those moldy, mildewy combs again, from one to three in nearly every hive, and in every case to the north side. The winter was one of unusually heavy humidity and unusual cold, especially after Christmas. Some of the hives had condensed moisture on the inside of the super cover and on the top-bars.

"Ample rainfall" did I say in that April report? Today, April 6, we show a total precipitation of more than 21 inches since January 1—an excess over normal of more than 6 inches. There has been rain and bad weather during fruit-bloom, and it has been cold,—frosts and even freezing.

Whatever may have happened to crimson clover and alsike, the present prospects for white clover are unusually good.

With deep sympathy we learn of the death of Mr. George H. Rea's wife, and greatly regret his subsequent retirement from the extension work in North Carolina.

Practically half our little yard was in two stories this winter, the other half in the brood-chamber only. In the single-story hives the brood averaged a little above that in the double stories; there were more stores left, seeming to indicate a lighter consumption and fewer mildewed combs. In every colony in the yard, the brood-chamber was on the south side of the hive.

Out near Franklin, Tennessee, there are many acres of turnip grown for seed. It blooms about the first of April, and the bees in that locality build up on it with a rush. This year it was killed by the late freezes. Mr. Frank Pellett, who was in Nashville the first two days of April, had hoped to see this bloom with the bees working on it, but the freeze made it impossible. Moreover, it rained practically the entire time he was there.

When the question was read at the Tennessee state convention, "How many of those present pack their hives for winter?" it was interpreted by the president to refer to winter cases, and there were no affirmatives. In our own yard we had a few shallow supers of leaves on, and, in the

THE DIXIE BEE

Grace Allen, Nashville, Tenn.

case of one rather weak colony, had removed three combs,

centering the remaining seven, packed the sides with leaves, and put a super of leaves on top. At the time of the first examination, March 31, they had 4 combs of brood, plenty of bees and stores, and no mildewed combs. Only one colony in the yard had more brood, and only one other as much, the most of them having 3 combs. I should like to give the little packing the credit; yet Mr. Bartholomew, backed by Dr. Phillips, maintains that unless all four sides and top and bottom are packed, no good is gained. So I suppose the queen gets the credit for the fine way the small colony came thru. Yet it does seem as tho if a lot of packing is better than a little, a little would be better than none.

If only in some magical way the people who try to keep bees without reading or study could happen across such a definitely instructive article as that entitled "Spring Management," by Dr. Miller, page 255, April, they would surely be immediately converted into readers and students. One such article is worth more to the reader than the subscription price for many years.

I wonder if Dr. Miller could have said more definitely about what time he would make that first inspection, when good colonies might be expected to have four or more combs of brood—not definite as to date, of course, as that differs so with latitude, but as to the advancement of spring during fruit-bloom, perhaps, or when the maples are dropping their seedpods and putting out leaves, and cardinals are calling clear.

Have you as fixed rules for the amount of stores in spring, Dr. Miller, as for brood?

The Division of Extension, College of Agriculture, Knoxville, with the co-operation of the Agricultural Department of the N. C. & St. L. Railway Company, is sending out a demonstration train thru several counties, giving exhibits and lectures covering all phases of poultry-raising and bee-keeping, and the marketing of these products. Mr. Bartholomew accompanied the train, which left Nashville April 8.

On Thursday, April 5, there was a meeting of beekeepers at the yard of Mr. J. Ivan

Banks, Dowelltown, for the purpose of forming a county organization. Mr. C. E. Bartholomew was present, and they had looked forward to having Mr. Pellett with them; but unfortunately, on the 2d, Mr. Pellett received word of an accident to his little son, and hurried home. We are all hoping the accident may not have proven serious, and we greatly regret missing Mr. Pellett at the various meetings he had planned to attend—including that of our own county. And we hope he will come back.

There was only a baker's dozen present at the meeting in our apiary to organize the Davidson County Association, but we organized. The constitution which Mr. Bartholomew presented as the one adopted with some modifications by other county associations states the object to be "to promote the beekeeping industry of the county, to unite the beekeepers in one compact body, to create a power the units of which, working in harmony of purpose, will foster fraternal relations and intercourse among the beekeepers; safeguard the material interests of the industry, elevate the standards, and improve the methods of beekeeping; encourage and help to introduce beekeeping instruction into elemental and high schools; secure the enactment and enforcement of just inspection laws, and enlighten the general public regarding the value of honey for a pure food."

Now, that's a whole lot to take upon one's

organized county self as one's object, and probably for a while this particular county organization will content itself with the "material interests" and the "fraternal relations." But that, I contend, is a beginning, and a good beginning. Mr. Allen was chosen president, Mr. E. J. Adkisson vice-president, and W. Edward Lee secretary-treasurer. Later we shall have committees, and the committees will do things.

Of course the feature of the meeting was Mr. Bartholomew's convincing address setting forth the advantages and possibilities of organization—co-operation of effort for the large producers, and instruction for the beginners. There was evident an earnest appreciation of this opportunity, and plenty of humorous, friendly conversation throughout.

And here is the importance and significance of any such meeting. Davidson is only one county in one state in this great country; but get this sort of thing sufficiently widespread, and see what you will have. If, for instance, the beekeepers in every county in Tennessee should band themselves together to make the individual members high-class and progressive, and their county a leader in the industry, what couldn't and wouldn't Tennessee as a state achieve? Then suppose that same thing of every state in the Union. And that is the end toward which any effort, however small and seemingly unimportant, works; and the possible final results are scarcely to be predicted, as to new standards of efficiency and success.



B EES had a partial flight March

22 in this part

of Ontario—their first outing since November. Then on the 25th and 26th the thermometer went up to about 60, and all colonies flew nicely. In spite of the long and exceptionally cold winter, the bees seem to have wintered splendidly outdoors—at least all who have reported to me so far tell that story, and our own bees are in nice shape at all of the yards so far as we can judge at this season of the year. Today, April 5, snow has been falling nearly all day, just to remind us that summer is not here yet, and that winter still has a kick or two left.

We have just returned from the yard 100 miles from home, where over 250 colonies wintered outside. This yard was never vis-

NOTES FROM CANADA

J. L. Byer, Markham, Ont.

ited by any of us since last October, and not a person up

there did a tap to the yard till on the evening of March 21, when some snow was taken from the entrances, as prospects seemed good for a flight the next day. Judging by five years' wintering on the let-alone plan, I have come to the conclusion that all the tinkering done at home yards, such as raking out dead bees from entrances, etc., amounts to little; but of course there is a certain amount of satisfaction in doing this "tinkering," even if there is no money in it. Did you ever spend some time in helping some poor chilled bees to get into the entrance of their hive after being caught out by some sudden changes of weather, even when you felt that you were doing very little actual good from a monetary standpoint? We have often done that very

thing, actually taking a great deal of interest in the work. On the same principle, no doubt, a lot of little things are often done in connection with bees near home that are not possible to do at out-apiaries, and—well, I guess these bees at the out-apiaries are none the worse for our seeming neglect.

Clover looks fine so far; and as frost is about all out of the ground, the chances are that a little heaving of the plants will now occur. "Heaving" is directly caused by hard freezing at nights followed by warm sunny days; but even in this kind of weather the danger is never as great when there is no frost under the surface of the ground.

That editorial on foul brood, page 250, last issue, should be read by all beekeepers. One comment made on the bulletin discussed (No. 431), to my mind should be modified unless American foul brood differs in different localities—a thing that is hardly probable if at all possible. I refer to the statement that, previous to the publication of this bulletin, the ordinary foul-brood inspector could not be sure whether he had a case of dead brood or American or European until a bacteriological determination could be made. Personally I believe the characteristics of American foul brood are so uniformly the same in all cases that no foul-brood inspector should ever make a mistake in diagnosing this disease. With European foul brood and sacbrood it is an entirely different matter, and an expert is apt to be deceived. The definition given by the editor, of how these two latter diseases work, is about as good a one as we have seen. "European foul brood attacks the larva mainly before it uncurls. Sacbrood attacks its victim after it has stretched out on the bottom of the cell walls, and a day or two after it is sealed, or just about the time when it begins to spin its cocoon." By remembering these simple facts, generally there should be no difficulty in telling the two diseases apart. As to American foul brood, while, as the editor says, in some respects it resembles sacbrood, yet the absence of all ropiness, and the well-known odor of American foul brood, should prevent any confusion on that point.

PAPER PAILS FOR HONEY.

In view of the increased price of honey-pails, and the prospect of a still higher price in the near future, the question of containers for honey, in case we get a crop, is a matter of live interest here in Canada.

Manufacturers are asking for orders to be placed right away so that they can arrange as to purchasing tin, etc., before there is another advance in raw material, not to mention wages of employees increasing, etc.; and no one can say that their request is at all unreasonable. At the same time many of us hesitate to stock up with pails when not being sure of a crop, for, aside from any question of capital being tied up for possibly a year or more, personally I dislike to have a large stock of pails carried over, as there is always danger of rusting, particularly if one has not first-class storage facilities.

As a means of helping out the situation, paper containers are being investigated; and, judging by some samples shown to me a short time ago, it looks as tho they might be a success. To be sure, paper has been used in the past for extracted honey; but in so far as we have noticed, only honey in the granulated form has been thus handled. Of course the honey was placed in the paper containers when just ready to granulate, and it soon became a solid mass. The samples shown us are of the pail pattern, and are warranted to hold water or other liquids, so they should hold honey all right. They are made of heavy paraffined cardboard, the waxing being done by some special process. The name and address of the producer, and any directions as to keeping honey, or other advertising matter, can be printed on the pails as desired. No prices were quoted, so at present we can give no more detailed information.

THE POSSIBILITIES OF CO-OPERATION.

On the first page of the February issue, the editor, in referring to the possibilities of co-operation, says that Ontario is well fitted to make this system a success. His reasons are that the "territory is not large and that the beekeepers have covered practically all the good ranges in the province." "Territory not large." Let us consider that point a minute. From old Glengarry in the east on the St. Lawrence, to Essex County in the west, it is about 500 miles. From Toronto, the center of this line, it is 225 miles straight north to North Bay. This comprises what is generally known as Old Ontario, and it in itself is no small territory. This territory, as the editor says, is in many places at least pretty well stocked with bees. But starting from North Bay and running north and west we have another part of Ontario so large that the great Empire State, a dozen or so "Little Rhodies," and a few other of the states could be tucked away in it; and this latter

territory is destined, in my humble opinion, to be the place for the greatest expansion of the bee industry in Ontario in the near future. If I were 20 years younger nothing would please me better than to take a plunge into this great north land, for assuredly there are possibilities there unequaled or unexcelled, at least in the older parts of the province.

As to co-operation, desirable as it may be, the plain unvarnished fact is that such a move has never been successfully accomplished until the people directly concerned were almost if not actually forced by circumstances to organize. Generally speaking, then, the time is not yet ripe for such a move to be successfully launched here in Ontario.

* * *

The question as to how far bees will fly, discussed by Mr. Doolittle and the editor in the Dec. 1st number, is something that

will never be settled to suit all conditions and localities. As mentioned before, for a number of years we had buckwheat a little over three miles from our home apiary; and while the bees near these buckwheat fields stored surplus our bees gathered never a drop. On the other hand we saw thousands of our bees working more than three miles from the apiary a few years ago at the Lovering yard; and on another occasion, when all clover was killed with drouth on our side of the bay, the bees flew two miles to the water and then across another two miles to the opposite side. This last stunt would not be expected to be profitable; but the bees certainly flew the four miles. After all is said and done on this question, tho, very few beekeepers indeed would care to locate an apiary where the bees had to depend on their main source of nectar located two miles or more away.



LESS talk is heard now of the prospective honey crop and the price to be obtained than of the tremendous increase in the price of cans. Already the reports indicate that it may be impossible to get tin containers at any price later on. It would seem that the beekeepers should be interesting themselves in the possibility of wooden containers. It is very interesting to note that the beekeepers of California have already decided to use barrels, and market large orders of honey.

* * *

There has been some little discussion of late in the state papers about the best method of transferring bees. Each writer presents a different plan, and any one of those given should be successful if the directions are followed carefully. The good that may come from these suggestions is the getting of more bees out of gums and into modern movable-frame hives. In so doing the beekeeper will be complying with the foul-brood law, and, at the same time, placing his bees in position to make him due returns for his investment. The one marvel of beekeepers who have transferred is the great amount of honey that can be made from a colony of bees.

* * *

It is to be regretted that the regular session of the legislature adjourned without passing the experimental-apiary bill.

IN TEXAS

By F. B. Paddock, State Entomologist

This bill carried a great future for the beekeeping industry of

this state, but perhaps another concerted action will be made at the next legislature for such a bill.

* * *

Messrs. Lutchter Stark and R. L. Lester, of Orange, Texas, were visitors at the Experiment Station Apiary. These gentlemen came from a section of the state that is neglected from the standpoint of beekeeping. They are enthusiastic over the possibilities of their section, and it is certain that their methods will surely bring results.

* * *

With us the spring has been extremely dry, which makes very trying conditions after a very dry winter. The cold wave did not hit so hard in this section, and the bees were hardly kept from flying. The bees seem to be gathering pollen and honey every day. The pears were in full bloom on March 15; on the 18th the bees were working on the oak blooms, and from the 20th to the 30th the willows were in bloom. By careful attention our bees have built up eight frames of brood and will be ready to divide in a few days.

* * *

Distressing reports have come from beekeepers in one of the fruit sections that the fruit-growers were spraying their trees while in full bloom, with the result that the

bees were being poisoned and the industry threatened. Unfortunately, there is not a law in this state, as there is in many others, which prohibits the spraying of fruit-trees when in full bloom, to protect the bees. It has been acknowledged for many years that no extra benefit could be derived from spraying fruit-trees when in full bloom, and the recommendations usually say spray when 90 per cent of the petals have fallen. At such times there is very little for the bees to get from the fruit-blossoms, and but few are found around the trees. The fruit-grower should realize the great value of the honeybee as a pollenizing agent, and should protect rather than destroy it.

* * *

In this state great quantities of cotton-seed meal are used for feeding beef and dairy cattle, and hogs and sheep. Reports have come in now for two years of the troubles coming up between the beekeeper and the stockman. For the most part these have been of a more or less local nature and were soon settled. It seems that in a dearth of pollen the bees will gather cotton-seed meal, either from the storeroom or the feeding-trough. The bees then become a nuisance to one working around the feed-room and to the stock in the feed lot. To what extent the stock is stung by the bees is not known. How much cotton-seed meal is carried away by the bees is not known, altho one report says an entire sack (100 lbs.) was carried off by the bees. The last report to come in is that of a stockman who was annoyed by the bees from several yards in his vicinity. The charge was made that poison had been used to get rid of the bees. The bees died rapidly, regardless of the trouble. This raises an interesting question which should be investigated as soon as possible. What is the effect of cotton-seed meal fed in un-

limited quantities to a colony of bees? Considerable has been said already, but facts which will stand cross-examination are lacking entirely.

* * *

The above brings up the discussion of artificial pollen and the value of cotton-seed meal as such. It has been evident for some time that much loss of bees could be prevented by the use of an artificial pollen. This is evident in one of the following reports. Bees will not seek an artificial pollen when the natural pollen is available. We have tried to feed cotton-seed meal, even mixing in some honey. The bees took up the honey but refused to take the meal.

* * *

On March 4, too late for our last report, a severe cold wave hit Texas and was especially destructive in the southern portion of the state. In the Rio Grande section most of the citrus fruit was at least severely damaged. This has made a very different outlook to early-crop prospects; in fact, in the latter part of March the bees were weak, with little or no stores, and just making a living. The season was put back thirty days, and not many beekeepers expect a spring crop of honey. Further north the extreme drouth was a serious handicap; but in spite of this the bees were building up on the stores, which were going down rapidly. In some localities of the southwest section the late freeze was disastrous. Many colonies of bees died, leaving plenty of stores, apparently from lack of pollen. Since the freeze the bees have built up slowly and irregularly. With the continued drouth there will be but little honey except from mesquite, which is usually best in dry seasons. In one locality feeding has been resorted to in order to keep the fine start the bees had made. The queen-breeders in this section felt the effects of the adverse condition.



A FRIEND
of mine, a
beeman,
tried to rear

FLORIDA SUNSHINE

E. G. Baldwin

some queens the last of February, near this place. He failed to realize his expectations for the weather was too cool and changeable. I have always found that changeable weather is about as hard to combat, in queen-rearing, as steady cool weather. Since the freezing temperatures of early February, and the damage to citrus and other trees and shrubs resulting, the

forage has not been equal to normal. This too tends to re-

tard queen-rearing. Better wait now till the middle or last of March or early April, brothers, for your queens. Wait till settled warm weather. It is more than likely that there will be some orange bloom for two months or more, and perhaps in May and June, owing to the freeze. This will make ideal queen-rearing weather and conditions. Better plan to do your queen-

ing a little later than usual this season. But, be on the alert to take advantage of the first steady warm weather and honey-flow.

By the way, when you are rearing and introducing your queens don't fail to try out that honey method of introducing queens; then report. But don't fail to close the hive, almost, and see that robbing does not start. Never mind taking honey from the same hive. Any honey will do. That is not the secret. The secret, if there is any, is in using plenty of honey, and almost closing the entrance.

At this date, April 1, we note with pleasure that, while the mangrove in the vicinity of New Smyrna, and near the shore at that, is frozen practically down to the roots, eight miles further south, near Oak Hill, and further out in the water, it is hardly hurt perceptibly. There may be a crop from it this year as big as ever. Let us hope.

We might almost call the month of May the month of scrub palmetto. April, May, and June are all, it is true, graced and beautified by those queenly racemes of creamy white that droop, plume-like, amid the saw-blade leaves and palmy fronds of the saw palmetto (*Sabal serrulata*). But the major part of all the honey secured from this source is secured in the charming month of May; hence the assertion that heads this paragraph. It begins to bloom about the end of March in the extreme southern portion of the peninsula, the blooming period creeping up the calendar as the bloom creeps up the state, till in the vicinity of the 29th parallel (the northern limit of profitable secretion), the yield falls mostly into late May and early June; and so nearly two months elapse between the two extremes of blooming time.

Cold winds and chilling weather are over; all colonies are strong, if normal, and drones are plentiful. Oddly enough, in districts near orange-groves, all swarming is over by palmetto time. The bees seem to swarm themselves out, and by this time are settled down to business in dead earnest. These columns have often directed attention to the fact that the blossoms of this palmetto are extremely susceptible to changes in temperature, etc. Too dry weather during bloom will wither the blossoms, and too much moisture will mildew them. In those "off" seasons, thousands of flies, moths, wasps, butterflies, and sweat bees will visit the blossoms, throng over and about them, but nary a honeybee. Why this is, I could

never determine. But such are the facts. In the vicinity of New Smyrna we count on a good yield from this source about once in three years, and perhaps a fair yield every other year. At present writing (April 3) the racemes of blossoms are full length, fully a month earlier than usual here. It looks like a good palmetto year, but you never can tell.

There is no finer honey in the country than pure scrub-palmetto honey (the term "scrub" is locally applied to the saw palmetto). And, thank goodness! it is not affected by frosts. This year, after the disastrous freeze of February, the beekeeper welcomes anything that will keep its vitality and grow and yield honey thru cold and heat alike. Almost all portions of the state feel the beneficial effects of saw-palmetto bloom; but only near the lagoons, marshes, hummocks, and river courses, or sea coasts, does it really produce surplus in paying quantities. In favorable localities the yield per colony may reach an average of 100 lbs.; and what a honey it is!—pale lemon in hue, thick as molasses in January; in body, clear, aromatic—food for the gods. Mr. O. O. Poppleton pronounced it the finest honey in Florida.

There is no better time for requeening than the blooming period of saw palmetto.

The following quotation from a large manufacturing concern in our state will speak for itself:

Dear Sir:—We shall be glad to receive a sample of your honey. We are using honey actively and prefer to buy it from Florida producers rather than send to Philadelphia, Baltimore, New York, or Boston.

Yours very truly,

Such signs as this point to an increasing consumption of our own honeys within our own borders; and the more Florida uses in her own boundaries, the less will need to be shipped north to glut the markets there. It is to be hoped that our state may come into the position of Texas, that consumes so large a per cent of her own products, and very much to her credit. We urge Florida beemen to ship all honey to Florida jobbers so far as possible.

The sources of honey in Florida seem to be increasing; at least, beemen are discovering that more and more plants and trees and shrubs are nectariferous. Not long ago a plant was sent in for analysis from the southern part of the state—a plant that proved to be the redroot (*Gyrotheca tinctoria*), which is reported to yield honey in considerable quantities. It begins to bloom in the middle of June, or a little

later, and continues till September. It prefers damp soil, tho it grows fairly well thru the low pine woods or flatwoods. Bees work on it all day long. The honey is said by those who have it to have a rather acrid and decidedly unpleasant taste. One beekeeper reports that he *thinks*, but does not really know, that it was this source that spoiled the flavor of his cabbage-palmetto honey. See also the report in the Oct. 15th issue, of a beeman who reported that his cabbage-palmetto honey was poor in flavor. It may be that it was this redroot that did the damage. The flower takes its name from the dark red root, which colors the flesh of swine pink when used as forage.

Many of GLEANINGS' readers will doubtless remember Mr. W. J. Young, formerly with the Chemical Staff at Washington, D. C., whose name appears on the excellent government bulletin containing two valuable publications, the one entitled "The Chemical Analysis of Honeys," and the other "The Identification of Honeys by Microscopical Examination of Pollen Grains." The latter is by Mr. Young. While no longer connected with the federal office, he is still doing good work in other fields. A recent letter from him seems to have some points worthy of being reprinted here. With his permission portions are here given. He says: "I am referring your letter to Mr. B. J. Howard, the Chief of the Micro-chemical laboratory. He will, I think, make the examination for you. Blossoms for examination should be gathered as soon as open, and dried as for the herbarium. Usually an ounce of honey is plenty for microscopic examination."

About November last, two young men of the inspection squad of the Florida State Plant Board, Gainesville, Fla., appeared at our abode and announced that they wished to examine critically the leaves of all orange-trees on the place. Their aim was to ascertain whether or not any signs might be appearing, to indicate the presence of the dreaded citrus canker. After they had made the examination, and found that no disease was present here, and while they were at the hydrant, cleaning up a little before taking their auto again, I engaged them in conversation. I had noted the special suits they used for all inspection work, and at once the idea came to me, "What a dandy bee-suit!" I spoke about it to the young men, who told me that the suits could be obtained of the Plant Board at Gainesville, and cost only \$1.25 each.

Well, the upshot of the whole matter was that I wrote to the Board and ordered a suit as a trial dress for the beeyard. When it came I donned it and sallied forth, looking like an inspector sure enough. But, altho I appeared like an animated Santa Claus in summer time, I was pleased with the effects, and the more I have used the suit the better I am pleased.

The suit in question is made of white cotton cloth, like a heavy cambric cloth; opens down the front, buttoning up close all around the neck, and is made in one piece from top to toe. When the leggins are put on over it, and the veil tucked down under the neck-band, and that buttoned, I defy any bee, even the most savage and the most persistent, to gain admittance to the operator. The special merit of this suit, as I see it, is its lightness and color. White is less offensive to bees than darker hues; there is no doubt about that; and with a light pair of overalls, and a light jumper or blouse under this suit, it is not uncomfortable even in warm weather. It has a pocket in the front, handy for the hive-tool, and one in rear for handkerchief, etc. Plenty of room is one of the chief merits in a bee-suit; and I made a point of getting this one large enough and to spare. I do not regret it. Not long ago I was surprised to receive the following letter from Mr. Wilmon Newell, Plant Commissioner, of Gainesville, which is interesting enough to deserve a place in GLEANINGS for Florida readers:

Dear Sir:—I have noticed your letter of January 31, with which you sent a check for \$1.25 for an inspection suit to be used in connection with your beekeeping work. I have had considerable experience in the past with bees myself; but the possibility of the inspection suit being adapted to beekeeping work did not occur to me until I noticed your letter. From a theoretical standpoint, at least, it looks as tho the suit should be well adapted for this purpose.

After you have tried it out thoroly I should be glad to hear from you as to how well it answers the purpose.

Gainesville, Fla.

WILMON NEWELL,
Plant Commissioner.

METAL COVERS, AGAIN.

A correspondent from faraway Seattle writes to ask for more detailed description of the metal covers described and advocated in GLEANINGS, June 15, p. 472. Further information on the construction, especially of the wooden part, is requested. We have referred him to any of the standard dealers in bee supplies, advising him to purchase one cover complete in the flat, and use that as a guide in case he desires to make his own covers. He adds: "Our winters are as wet as your summers, and I have found all the trouble you have with ordinary covers." Friend Carr, of New Jersey, has also written, advocating canvas, heavily painted, in place of tin or galvanized iron (the latter

being our preference.) We replied, "Not in Florida." Our hot boiling sun in summer, following close on the heels of a soak-

ing rain, will almost warp a railroad rail! We want covers that last a lifetime—and longer.



SPRING is LOITERING this year. AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado

A year ago she was with us in all her loveliness; but as yet, April 6, we can scarcely say she has arrived. The bees are getting ready for her, and breeding is going on at quite a satisfactory rate. Some hives have four frames of brood and are spreading rapidly. The maples are in bloom, and dandelions are beginning to appear. There is an abundance of snow, and we should be able to have all colonies ready for the harvest in June, July, and August. Those who are contemplating using the Alexander plan of increase may succeed; but the season is so late that it may not prove successful.

GRANULATION OF COMB HONEY.

We read of beemen who are changing from comb to extracted honey production. Perhaps we can explain this partly by the fact that comb honey has been so subject to granulation. The granulation of Western comb honey is a serious indictment of it. This may all be averted with a little diligence. The honey must be shipped early, sold early, and consumed early. This can best be done by having all cases nailed in advance, all cartons ready, and the selling plan outlined in advance. There is no reason why the comb-honey crop may not be sold before being harvested. This is true of the walnut crop—it is sold before the walnuts are off the trees. The power of advertising is capable of doing this, and advertising will solve the question of granulated comb honey. By advertising, the comb honey of the United States can be marketed before there is any chance for granulation.

DANDELIONS.

Editor Root says on page 252, April, that dandelions yield little or no honey. It would be interesting to hear reports on this from various parts of the country. Here in Colorado dandelions yield honey—sometimes in abundance; and whenever they are plentiful some honey is gathered. It is common for the hives to be filled with dandelion honey, and a few beekeepers have extracted dandelion honey and put it on the market. Many seasons have I seen substantial amounts of dandelion honey stored in the brood-chambers, and not infrequently have the bees stored and finished dande-

lion comb honey. Most of the dandelion honey stored, however,

is consumed in the hive during the interval following fruit-bloom and before alfalfa yields nectar. But dandelions are more loved by beekeepers for the nectar secured than is fruit-bloom in many localities. We can get surplus from dandelions if we want it—not every year, but often.

WINTER LOSSES.

Losses are heavy in western Colorado, running close to 25 per cent. Eastern Colorado has been more favored—the losses being negligible. Take Colorado as a whole, we may reasonably expect a crop unless too many unforeseen obstacles arise. The high price of hay will cause early cutting of the alfalfa, and better farming everywhere will be practiced, which works against the interests of the Western beekeeper. Sweet clover growing on land unsuitable for cutting is one of our main stays. Greater alfalfa acreage will be sown in the next few years. Colorado has about five hundred thousand acres of alfalfa; and when that acreage is increased to a million acres, our bee population can be increased a half, anyway.

From present indications there will be a serious food shortage in the United States this year, and honey will reach an exalted figure. The beekeeper who does not bestir himself will be the loser. Our duty is to produce! produce! How many tons are you good for? With sugar at \$10 per hundred, and maple syrup selling at \$2.25 per gallon, should not extracted honey bring 12 to 14 cts. wholesale?

Now about the queenless colonies of good strength—just send to some queen-breeder for a dozen or so queens and have a few on hand at all times for the needy colonies.

With bee-supplies selling at the prices now asked, what chance is there of being able to increase honey prices commensurate with the increased cost of production? The cost of supplies is now almost double what it was fifteen or twenty years ago, and the price of our honey has not doubled as yet. We may see the price doubled soon, however.

HEADS OF GRAIN FROM DIFFERENT FIELDS

May, 1917

BY GRACE ALLEN

I cannot sing of bees and flowers
This best of all earth's Mays,
When men must meet such tragic hours
Thru all the lovely days.

The cardinals are calling clear,
The raptured mockingbird
Sings sweeter, tenderer, more near
Than ever I have heard.

The bees are humming round each hive—
You know the old, old way,
That makes you thrill to be alive
On such a tingling day.

Beneath blue skies and waking trees
Where green shows more and more,
There stirs and floats upon the breeze
A flag above my door.



The Influence of I want to ask some
Young Queens on the questions, and should
Swarming Question like some advice.

Last summer was the first time for me to clip queens. I had about all the bees I thought my location would stand for, and attempted to prevent swarming; and in case I did not succeed I wanted to hold the bees on their brood. I tried a plan given in Dr. Miller's book. When the swarm issued I caged the queen, cut all cells, left the caged queen in a Miller cage shoved in at the entrance. After five days I cut cells again. In another five days I cut what showed up again and released the queen. Part of the colonies treated this way went to work. Some of them did not let up work at all, but the rest of them swarmed repeatedly. I would cage the queen again and see that there were no cells; let them go for a few days, and then release the queen. It made no difference. They would not work—sulked and hung out. I removed the queen in a few of them and gave a cell. When the cell hatched they went to work all right after losing two weeks or so of a fine clover flow. To prevent swarming I went over all colonies about once in ten days and destroyed queen-cells that might be started. I had about 15 colonies out of 120 that did not make any preparation to swarm. These were my best surplus producers of course. These made from four to nine Danzenbaker supers of comb honey each. I tried several other schemes to get those sulkers to go to work. I removed all brood and gave empty combs. I gave some of them ten combs of sealed honey, with the idea they would carry it upstairs to give the queen room to lay. I gave ten frames of full sheets of foundation. All these schemes looked alike to these bees. As soon as the queen was re-

leased they would swarm. But all colonies that had the queen removed, and a cell given, sulked till the queen hatched and mated, and then went to work.

I have been thinking that if I would raise a lot of queens and have them ready in nucleus I could at swarming time exchange queens, giving the colony a young queen. If the old queen was not too old, and a good one, I introduce her to the nucleus where I got the young one, and use her again, or else raise enough young ones to do the business. This looks like a lot of trouble to me; but if I thought it would do the business I would try it once any way, as I have quite a lot of hybrid and black queens.

Do you think it a good plan, if the stock in the colony is good and the chances for pure mating good, to remove the queen and leave just one cell after the swarm returns? Would the bees lose too much time to make the plan a poor one by waiting for the young queen to hatch?

Notwithstanding my amateur bungling I got a crop last summer that looked good to me. We had a great clover flow that lasted till the dry weather stopped it in August. I worked my best colonies for comb honey and the rest of them for extracted. I have sold 243 cases of comb honey and 5000 lbs. of extracted honey.

Sabetha, Kan.

Frank Hill.

Dr. Miller replies:

Bees are pesky critters, aren't they? Your experiences remind me of some I've had myself. I would carefully plan out a certain scheme that I felt sure would work—couldn't help but work—and then when submitted to the bees they would none of it.

One of these schemes was the very one you are now counting on. I decided I would get a young queen into each colony in one of the out-apiaries, and then good-by to swarming. To get young queens ahead of swarming-time is easier said than done; but it may be done, even if we send south for queens. At any rate, I got in the young queens, and then—the bees swarmed!

The fact is that the presence of a young queen, no matter if she has not yet been laying a week, will not overcome the swarming fever if it is already there. The presence of a young queen, however, will, almost without exception, prevent the development of the swarming fever, if she enters upon her duties while yet no swarming fever is present. The late C. J. H. Gravenhorst gave it as a rule without exception that a colony having a queen reared in the hive in the current year would not swarm that year. That may be true with blacks—his bees were blacks—but there are rare exceptions with Italians. So if you cannot get the young queen established at laying before

HEADS OF GRAIN FROM DIFFERENT FIELDS

the swarming fever has started, then wait till the swarming fever is over. The pleasant fact in this connection is that, if the colony be about ten days without any eggs, the swarming fever will be over.

From this it will be easily seen that when a colony swarms, if the old queen be taken away and a young queen given in her place, and the swarm then returned to the brood, the bees will swarm out again, just as they would if the old queen had not been taken away. Of course there are exceptional cases in which the return of the old queen with the swarm would not be followed by swarming; and it is possible that in such cases a young queen might have a little better result; but such cases are so rare as to be hardly worth considering.

In the treatment you relate, you killed cells when you caged the queen, five days later, and then five days later still. That was three times—once more than was necessary. All that is necessary is to make sure no virgin hatches. You will accomplish that if you kill cells at the time of swarming or any time within five days, and then a second time ten days after swarming.

It is quite possible that the result might have been different if, instead of caging the queen, you had kept her in a nucleus.

You inquire how it would be "to remove the queen and leave just one cell after the swarm had returned." I don't know that I could tell just why, but I think the plan would work well in some places and not in others. It may be well worth while to try it. The colony will be little more than two weeks without a laying queen, if so long as that, and would be likely to keep at work without sulking.

C. C. Miller.

Providing Water
by Means of a
Candle Wick

"Water! water!" my bees seemed to call, as they flew about, and lit and stiffened

in a temperature of 52° this 20th of February. I hurried to the cellar, got a number of empty jelly-glasses, some candlewick, a good length of foundation wire, tacks, hammer, and pliers. Close by the side of their narrow entrance, and at about three-fourths the height of a jelly-glass, I drove two tacks half way in, and about four inches apart; then wrapped one end of a short length of wire around one tack; set the glass between the tacks, so that it rested on the alighting-board, and bound it to the front by bringing the wire around it and wrapping wire about the other tack. Now with a piece of candlewick about ten inches long, and some water in the glass, my fountain was complete. I soaked the wick in water; strung about three inches of it along in front of the entrance, and about half an inch therefrom,

stuffed the other end of the wick down into the glass. We filled the glass with water. My bees did not go further than that absorbing candlewick all day. I will not leave them without it again.

Emsworth, Pa.

Geo. W. Guthrie.

Steady Cold
Much Easier
on the Bees

About October 1 we have our first showers, enough to stop the honey-flow. We

generally still have bright sunshiny days, however, with the result that the bees fly practically every day of the winter. Colonies that went into the hives the first of October (one can not call it winter), with a hive full of bees and honey are reduced in the spring to a handful of bees, and with the stores almost all used up.

While eastern beekeepers, no doubt, envy their western brothers with their mild winters, if they only knew what these winters mean they would be thanking their stars that they aren't cursed with them. Winters that are stormy from October until March the bees come thru with practically no loss, as they are never excessively cold, and the bees stay inside and are waiting to go to work when the first flowers begin to bloom. They use little honey such winters.

Lemoore, Cal.

W. J. Hickey.

White Sweet Clover
in Full Bloom the
First Year Sown

In the Dec. 15th issue on page 1188 I notice an article by Mr. C. W. Riggs regarding

melilotus alba blooming the first year. I have had only one year's experience with it, and that was in 1915 when in April I sowed a small patch just to see how it would do in my locality. I kept it moist with a garden hose as there was no rain for a time. It came up nicely and grew rapidly; and when about four feet high, about the first week in July, it began to bloom and kept growing higher and sending out new buds and bloom. I went away Aug. 4, and a few days before going I took an 8-foot rule and measured a number of the stalks. The tallest measured 9 ft. 8 inches and it was still growing when I left. Several other stalks went 8 ft. and 7 ft. 6 in., and from that down to three feet. Some of the stems were almost half an inch in diameter at the base. When I returned the latter part of September it had seeded and most of it was down. My bees were very busy on it every day while it bloomed. I got the seed from a local seed house and it was the white variety, very sweet-scented.

I allowed some of the volunteer plants to remain last year. They came up in the spring but grew slowly, did not grow more

HEADS OF GRAIN FROM DIFFERENT FIELDS

ounces per day to each swarm, tho there were some swarms not brooding, and probably, therefore, having very little water brought to the hive.

Holland, Mich., July 10. David Huber.



The Difference in Conditions as to Natural Swarming In California natural swarming does not pay (Chadwick, page 124, February). The

bees are worked for honey, I suppose, and near the close of the season the colonies are divided to make increase.

In New York the bees are divided to prevent increase—this at the beginning of the season. This may be done by actual dividing, by shaking, or by gradual withdrawing of brood-combs and starting nuclei with them. We have not yet discovered any plan that will prevent swarming when producing comb honey without meddling more or less with the brood-chamber. If we succeed in coming thru the honey season without swarming we surely would not make increase at that time.

Naples, N. Y.

F. Greiner.



Why Did the Bees Build Queen-cells?

The weather all thru March has been stormy, cold, backward, and with but

few days when bees could fly. The 24th was fairly warm, and in the afternoon bees were flying fine. This was a good time for a spring examination, and in looking thru we found as follows:

Hive 27, 10 frames, 5 containing eggs and brood in all stages; many young bees already hatched, stores none too heavy. We found a queen-cell nearly sealed, also two other cells with larvae about three days old; no drones in sight, queen a dandy. We refer this to you and other experts.

Portland, Ore.

E. J. Ladd.

[The queen you refer to, altho apparently a "dandy," and having a sufficient amount of brood for the time of the year and the number of bees she had, is probably failing. Very often a queen will fail this way when there is no outward evidence that she is going to play out. We do not know how to explain it in any other way unless we offer the suggestion that sometimes bees will break all rules and for no apparent reason. If the queen herself is really a dandy, as you say, and all right in every respect, then there is no reason at the time named why the bees should start raising cells; and even if they did so, a good queen ought to tear them down. The fact that this queen failed to do so, probably points to the fact that she is failing. We suggest that you let the colo-

ny go on, and watch developments. In all probability a young queen will hatch from one of the cells, and then mother and daughter will both lay along side by side. After a while the old queen will disappear, leaving the young one in complete possession of the hive.—Ed.]



Bees Necessary Also in an Almond Grove

I have read articles in Gleanings at different times in regard to bees helping

to produce big fruit crops. Here is my experience in that line.

I live in the best almond belt in California. Last February and March, during the blooming season, we had some very rainy weather. I had eight colonies of bees in a five-acre orchard; and every time the rain let up the orchard sounded like it too. As a result, we harvested about 9500 lbs. almonds on the five acres—nearly a ton per acre, while the other orchards in the district averaged only about 300 lbs. per acre, and some not even that much. The result of the bees' work also showed up in parts of adjoining orchards nearest to us. A good many orchardmen were so strongly convinced of the good work of the bees that I could have placed 200 or more colonies in orchards at my own figure. I was sorry that I couldn't make that increase, but was glad to increase them to 24 colonies.

Dunham, Cal.

Otto Reimer.



A Plan for Swarm Control

Some say that placing the queen below an excluder on drawn combs or foundation and the brood above it, will prevent swarming to some extent and that queen-cells built above do not alter the result.

Can better results be obtained by putting a super of empty combs between the two bodies above the excluder?

If queen-cells are not removed in either case, will it induce swarming?

Hurley, S. D.

Menholt Christensen.

A. The plan proposed in second paragraph, of putting drawn combs or foundation with queen below an excluder and brood above, will discourage swarming, but not necessarily stop it. In some cases it may prove to be an utter failure, depending somewhat upon the character of the honey-flow and the bees. It would help some to put a super of empty comb between the two bodies above; but it might be too much of a good thing. To be on the safer side it would be wise to keep the queen-cells cut out every eighth day, altho those in the second story will have less effect upon the swarming than those in the lower story where the queen is.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Management for Swarm-control in Comb Honey Production

We clip our queens at the time of the fruit blossoms, and give an extra story of extracting-frames to hold back swarming. When the flow of white-clover honey comes we "shake" colonies preparing to swarm or let them swarm; cage the queen found before the hive, and place the cage in the entrance on the bottom-board.

When the bees return, or several days later if we do not have the time, we move the colony to be "shaken" from its stand, and place an empty hive-body with the bottom-board on the stand. We take the two outside combs from the old colony, containing mostly pollen and honey, and put them in the empty hive-body. Between them we place four frames of full sheets of wired foundation. Four dummies (boards the size of

frames) complete the brood-chamber. Over this we place a queen-excluder, and on it set one or more supers of sections with "baits" in one super. We shake the bees from the eight remaining frames, hive-body, and bottom-boards, before this prepared hive, letting the queen run in with the bees, and then place the eight frames of brood over a weak colony to be run for extracting, cutting out the queen-cells, and, six days later, cutting cells again.

By this method we get four frames built, all worker cells; all the honey is forced above, and the pollen is deposited below. The bees do not make any preparations to swarm again until the late flow of honey. After the honey-flow we give them four frames of honey in place of dummies, and this stimulates the queen to lay for late honey-flow, and to build up with young bees for winter.

Brownstown, Ind.

D. F. Rankin.



Jimmy Peachbud says in all his experience, and he has handled hybrids, blacks, yellow jackets and hornets, that he never got stung as bad as he did the time he traded a hive of Italians for a poodle pup.

TWICE in my seventy-seven years of life I have been blind—first when a school-boy of about 14. Some kind of inflammation set in, and my eyes were swollen shut for two or three days. During that time (as I with my peculiar temperament

must be doing *something*) I learned to play the then popular melodies on my aunt's little French accordion. A short time ago, when I happened to get hold of an accordion, to my surprise I found that, altho 60 years had passed, I could still play, after a fashion, the most of those old tunes. I think "Sweet Home," just then comparatively new, was my especial favorite.

Well, the accordion was an innocent amusement. It did not harm any one unless it was the good aunt, and *she* doubtless was pleased at my proficiency, as she was my teacher.

My second period of blindness, instead of two or three days was (I am ashamed to say) for several *years*, and, worse still, after I was a grown-up man. There is an old hymn that has the stanza—

The heathen in their blindness
Bow down to wood and stone.

To tell the plain truth I was *blind* because I was a "heathen," or something worse. I was selfish, and recognized no god but self. In Pilgrim's Progress we are told that after Christian had gone quite a little way out of the "narrow path" he had glimpses of a great overhanging rock, and from this rock now and then flashes of fire blazed forth, and he finally became alarmed, fearing the rock might fall down on his head. I too had occasional glimpses of that flaming rock, and resolved again and again I would get back into the *manly* path and *stay there*; but the "forbidden path" always had some new allurements, and you know I have always been curious about new things to be explored. I was, however, getting to be more and more unhappy. Conscience was at times getting to be a fearful load, like that of poor Christian in the story. One day I was so unhappy I went off by myself in the woods. I sat down on a log and thought it over. I decided I must break away from Satan altho I didn't call him Satan *just then*. I finally rose up, raised my hand, and called God to witness my



Lord, that I might receive my sight.—MARK 10:51.
One thing I know, that, whereas I was blind, now I see.—JOHN 9:25.
If ye were blind, ye should have no sin; but now ye say, We see; therefore your sin remaineth.—JOHN 9:41.

decision that *hereafter* I would be a *man* and no slave to any *thing* nor to any *body*. I, with head up and shoulders thrown back, marched home, feeling proud that I *was* a man *once more*. I said, "marched home;" but before I *reached*

home Satan tripped me up and twisted me around his thumb until I felt like a whipped puppy, and was too discouraged to think of ever trying again.

But a crisis was coming—I felt it and knew it.* One night after closing my store (I was a jeweler at the time) I knelt down in the darkness and uttered a prayer beginning something like this: "O God, if there be a God, have mercy on me a sinner."

I don't know that I expected any answer; but I was in trouble, and decided to see if prayer would "do any good." It did "do good" at once. A voice, or perhaps I should say a suggestion, came to me something as Jesus said to the blind man: "What wilt thou that I should do unto thee?" I replied in my prayer: "Lord, give me back the innocence of childhood—the honest, every-day happiness I always had before I became a man."

Perhaps I had in mind the lines, comparatively new at the time:

Backward, turn backward,
O time, in thy fight;
Make me a child again
Just for tonight.

Again the voice came, asking what price I was willing to pay—how much I would surrender for this peace of mind I seemed to covet; but before I made answer, something impelled me to make a mental inventory of my present life. A revival was going on in our town, and they were holding union meetings in the different churches. I had never attended, and had even advised against them. I held back; but the old life loomed up again. Little by little I yielded until I was ready to say, "*All* to leave and follow thee."

As I started to go home a new world opened up before me, and, furthermore, a new *A. I. Root* was ushered into the world. I didn't worry any more about Satan "tripping me up," for it was no more the old

* The accordion was an innocent and harmless amusement—not so the other.

"A. I. R.," but the *Lord Jesus Christ* he would have to deal with. It was one of my "happy surprises" that the strong arm that never fails was always at hand so long as I let *him* take the lead.*

Now just a word about the "blindness" part. A little time before what I have just been telling you I was one day compelled to ride several hours in the caboose of a slow freight train. All I could find to read was a copy of the Bible and a medicine almanac. I first read one and then the other. I tried in vain to find something in the Bible that interested me, and I was, in one sense, honest in so reporting when I got home. I was *blind* to Bible truths and teachings, because I did not propose to obey its teachings.

After that prayer I have told you about I hurried home and hunted up the unused Bible. I wanted to know all about the new life that had opened up before me, and no other book in the whole wide world could unfold it. Do you wonder that I found it sparkling with new and precious truths? From that day to this every little while some Bible text stands out sharp and clear as if it were written across the sky, and I wonder I had never noticed its beauty before. Let me give you an illustration.

A few days ago some business matters required me to be some hours with people who smoked cigarettes, used bad talk, and were ungodly all around. After I left I was thinking that the experience made me love good Christian people more than I ever did before; and then all at once the beautiful text shone out sharp and clear, "Blessed are they who do *hunger* and *thirst* after righteousness." Just think of the expression, "hunger and thirst." There are many people who do "about right" in a lazy sort of way, and give little or no thought to it; but how many are there who really go thru the world *hungering* and *thirsting* after *right doing*? Last evening in prayer-meeting I asked if all in that great roomful of

people were *hungering* and *thirsting* in this way. And now I want to ask all the good people who read these Home papers, are *you*, my friend, following the dear Saviour in this *hungering* and *thirsting*? If the great wide world that seems just now *hungering* for war were *hungering* for righteousness, how long would the war last?

May God in his infinite love bless this message to a world groping in spiritual blindness.

When out in the woods as narrated, I stood up, raised my hand, and called on God to "witness" what I was going to do. When I with bowed head acknowledged myself a helpless (and hopeless) *sinner* I was the *witness*, while God did the work of opening my blind eyes and revealing the *new world* that all at once opened up before me.

One thing I know, that I am he
Who once was blind and now I see.

"THE LAMB OF GOD THAT TAKETH AWAY
THE SIN OF THE WORLD."

In my writeup of my visit to the great Ford factory in Detroit a few months ago I suggested, at the close, in speaking of Ford's reform work, that possibly Ford *was* a Christian *but didn't know it*. Having this in mind you may be sure I read over and over the clipping below from the *Sunday School Times*, for the lesson of Jan. 14.

A man known thruout America for his work with the honor system in reforming prison criminals recently made three interesting statements, according to a newspaper account. "I am still convinced that there are no bad men in the world; I am sure that my method is right," he said. Asked whether a certain notorious criminal, then under sentence of death, having confessed to murdering his wife's parents, could be redeemed, "No," was the reply, "but that means nothing . . . he is not even a type."

There are three mistakes in these three statements.

First, it is not true that "there are no bad men in the world," for there is no other kind than bad men. "There is none righteous, no, not one" (Rom. 3:10). "For all have sinned, and come short of the glory of God" (Rom. 3:23).

Second, a man like that murderer *can* be redeemed. "For God so loved the world, that he gave his only begotten Son, that whosoever believeth on him should not perish, but have eternal life" (John 3:16). "The law of the Spirit of life in Christ Jesus made me free from the law of sin and death" (Rom. 8:2).

Third, that murderer *is* a type of the logical out-working of the sin that is in every man. "There is a way which seemeth right unto a man; but the end thereof are the ways of death" (Prov. 14:12).

The sincere but mistaken reformer's statements were made without recognition of the central truth in to-day's lesson: the Lamb of God. He overlooked every man's sin, every man's need of the Lamb of God, and the infinite sufficiency of the Lamb of God to meet every man's need.

CHARLES GALLAUDET TRUMBULL.

* How did it affect business? Here is a sample: Next morning I recalled that the other jeweler in town and I had been paying 20 cts. a line to advertise how much better our own store was compared with our competitor, etc. I went up to his place the very first thing and said:

"Mr. W., I have started out to be a Christian; and if you will forgive me for the past I will try to be a friend of yours instead of an enemy."

Before long I had a chance to "prove out." A lady wanted quite an expensive article, but she said she liked rather better the one Mr. W. had than mine, and asked me if I thought his just as good quality, etc. She told him what I said, and bought of him; and this thing went on, for I always spoke well of my rival. Did I suffer by it? Bless you, no. The outcome was that he came to me one day and said, "Mr. Root, if what you have done for me is *Christianity*, I too want to be a Christian;" and it was my great pleasure to lead him to "the Lamb of God that taketh away the sin of the world."

HIGH - PRESSURE GARDENING

"POTATO-PLANTS" AS WELL AS CABBAGE AND TOMATO PLANTS—WHY NOT?

After my two articles on "high-pressure" potatoes (see p. 145, February, 217, March) I sent clippings of both to our Florida and Ohio experiment stations. Neither station seemed to think *very much* of my suggestions (and demonstration) in the way of giving a "hungry world" potatoes once more. Neither seemed to "catch on," or at least it looks so to me.

Let me try again. All authorities seem to agree that in cutting seed potatoes we should give to each sprouted piece a fairly good-sized chunk of potato. This is to furnish fertility to the little plant as it starts out. It is like the yolk of the egg to the newly hatched chick. Below is what the Kilgore seed catalog says:

In cutting the seed be sure to leave from one to two good eyes and a good-sized piece of the meat, not merely a piece of the potato skin. By careful observation we have found that by leaving a good deal of the potato with the eye a much stronger and more vigorous plant will be secured.

Now, friends, look here. At this date (March 20) old potatoes are selling for a dollar a peck for table use. Seed potatoes to plant are probably higher still. Now, what kind of economy is it to use potatoes at these prices for a fertilizer for the young plant? In the *Rural New-Yorker* for March 10 they seem to be "coming my way" a little, but evidently don't know it. This is what they say in discussing potatoes:

On garden scale they may be started in flats and the plants transplanted like tomatoes.

Exactly; and when you prepare the soil for those "flats," make it half or more old well-rotted stable manure.* Potatoes will stand richer soil than almost anything else; and when you take up a plant the great abundance of fibrous roots are just determined not to "let go" of this fertile soil that just suits them—quite a contrast to either cabbage or tomato plants.† Once more: After you have cut out several sprouts, with clinging roots, from a large potato, put it back in the hot-bed or cold-frame and you will get another lot a little later, just as good as the first. Still again: When the freeze came, I had some nice potato-plants in the cold-frame; and as soon as things "let up," out they went where

potatoes had been just dug. Do you know what happened? Yesterday I asked our grocer what he could give for some new potatoes. "New potatoes?" said he, "why, you can almost set your own price. Old potatoes are a dollar a peck, and there are no new ones, that I know of, in all this region." You see there has been no time to grow them since the freeze, except by "my invention." Do you say just now things are unusual? For years past something similar has occurred all over our nation just as new potatoes began to appear. Florida new potatoes were 70 cts. a peck in Medina, Ohio, just about a year ago.

When I introduced the Grand Rapids lettuce, years ago, and gave it its name, and sent seed to our readers, I predicted a great industry for it. People laughed at my enthusiasm and said, "Who wants lettuce in winter time?" etc. And this reminds me to suggest to the owners of lettuce greenhouses that now cover acres, wouldn't potatoes under glass just now pay better than lettuce? Here is what our Ohio Station says:

Mr. Root:—Your letter and clipping of the 16th has been referred to me for reply. In view of the remarkable shortage of seed potatoes in Ohio, and the probable high prices for early potatoes, we are recommending that greatest care be taken with the seed and in growing. Few gardeners will go to the pains that you have, but doubtless it would pay this season. Our "sun-sprouting" described on enclosed reprint gives somewhat similar results, and is thoroughly practical. The old scheme of cutting out the eyes, or using parings, leaving the rest for eating, might almost be justified under present conditions.

Wooster, Ohio, Feb. 21.

S. N. GREEN,
Garden Assistant.

"TRANSPLANTING IRISH POTATOES."

The *Rural New-Yorker* seems to "catch on" to my "invention" (?) even if the experiment stations do not. See the following from the March 24th issue:

Some one asks if it is possible to transplant potato-plants like cabbage or tomatoes. Surely—we have often done it. In a season like this you can cut off the "seed end" (which is where the sprouts grow) as the potatoes are prepared for cooking. This seed end may be planted in pots or boxes or in the greenhouse. They make strong plants as a rule; and when the weather suits these can be planted outdoors. We have done this several times with fair success. The plan is to put them in deep furrows. In case of a frost the soil may be hoed or plowed up over them for protection, and raked off when danger is past. You gain ten days or so with the crop by doing this. Some market gardeners practice this on a large scale, but it will not pay unless labor is cheap.

Today, March 27, we commence selling new potatoes once more since the freeze—

* Here is something more clipped from the *Rural*: "Good chicken manure will give great results on potatoes when used in addition to the chemicals. When dropped on the hill after planting, and well worked into the ground, it surely does make the potato vines lay."

† Potato-plants are easiest plants in the world to make grow. No failures and no missing hills.

firsts, \$1.00 a peck; seconds, half price; sold in new half-peck baskets.

DASHEENS AS A SUBSTITUTE FOR THE POTATO.

We clip the following from the *Toledo Blade*:

DASHEENS, RIVALS OF SPUD, TO BE SOLD HERE;
GOVERNMENT EXPERT HERE TO LECTURE ON
PLANT.

Arrangements to place dasheens on the Toledo market are in progress.

Robert A. Young, of the government Bureau of Plant Industry, will lecture Thursday night in the council chamber on the dasheen. The lecture will be under the auspices of the Housewives' League. The league urges substitution of the dasheen for high-priced potatoes. The dasheen cannot be grown further north than South Carolina. The present market price is 10 to 15 cents a pound. It is asserted the food value is 50 per cent greater than that of the potato, and that its uses are much more diversified.

Here in Florida they retail at 5 cts. per lb., and by the bushel at about 3 cts. Perhaps they do not as a rule reach *full maturity* further north than South Carolina; but I have now grown them for three summers in Ohio, with no trouble at all.

DASHEEN STAND THE WINTER IN OPEN GROUND IN VIRGINIA.

Mr. Root:—I write to inform you that my dasheens, left in the ground, survived the severe exposure of this severest winter of many years. We are located in central Virginia, and the knowledge of this hardihood of the dasheen may prove an incentive to extend the cultivation of this valuable vegetable in more northern latitudes than now usually grown.

Bees have wintered well, and are in good condition—are strong with ample stores.

Prospects for a good season were never better at this date in March. B. F. AVERILL.

Howardsville, Va., March 14.

The above is a valuable report. We have always dug them in Ohio when frost killed the tops. They might winter there with straw mulch as protection. Here in Florida, when killed down by the recent freeze they were up again with great green leaves before almost anything else. As there are many inquiries coming, I take the liberty of copying the following advertisement from the *Florida Grower* for March 10.

LOOK! LISTEN!—Why pay such high prices for white potatoes? Order your supply of dasheens now. Ask those who have tried them if they are not good at \$2 bushel. The R. W. Harper Co., The Dasheen Men, Montverde, Fla.

FAKE STORIES IN REGARD TO AGRICULTURE, POULTRY BUSINESS, AND BEEKEEPING.

The older readers of GLEANINGS will remember how hard it once was to convince people that comb honey was not made in a factory out of paraffine and glucose. About the same time a yarn was started about artificial hens' eggs, and a

good many believed it was possible. Since then other fakes have come up. Just a few days ago there was a statement in the *Scientific American* to the effect that sweetened water could be fed to a pumpkin-vine so as to grow enormous pumpkins; and two photographs were given to show how it was done. The pumpkin-vine was split, and a lampwick pulled thru it. Then the ends of the lampwick rested in dishes of sweetened water; and the statement was made in good faith that the vine would suck up the sweetened water and form pumpkins of enormous size. The incident recalled something I read years ago in some agricultural paper that pumpkins and squashes would take up *milk* in a similar way; and as my good friend Collinwood, of the *Rural New-Yorker*, is pretty well posted in all these things I submitted the page containing the account of it from the *Scientific American*. Below is his reply. It is rather long, I know, and evidently was not intended for publication; but the story gives such a vivid glimpse of our good friend Collinwood, and besides contains some wholesome morals, that I give the letter entire:

Dear Mr. Root:—I am very much pleased to hear from you again, and very glad to answer your question as best I can about this so-called scientific stuff. I believe the whole thing is a humbug, and I don't believe there is anything to it whatever. I am afraid that I am in a way responsible for this, and I will explain why I think so.

Some years ago, when I was younger than I am now, I used to try to write poetry now and then. It was wrong, I know, and I should have known better, but I am afraid I got started in writing stanzas to a certain young woman who was a very practical character, and quite unmoved, apparently, by my poetry. At any rate, the Muse took me by the ear and walked me off in a corner and started me at writing verses. Having fallen into the habit of it I kept it up, and, running a little short of facts now and then, I drew from the bank of imagination. I remember two poems, so called, which I wrote while I was working on a farm paper in the South, trying to boom the dairy business. One was about a frog that fell into a churn. There was cream in the churn, but the farmer's daughter, who was supposed to churn the butter, had probably gone off skylarking somewhere and left the job for mother. This frog found himself swimming in the cream. Many a man would have given up, opened his mouth, swallowed the cream until he was so heavy he could not float, and then gone down for the last time. This frog probably had ancestors who came from Cape Cod, and he was naturally a kicker, so he made up his mind that he would try a few kicks anyway before he went down. He kept on swimming and kicking until he churned the cream into a lump; and when the lazy dairy-maid came back there was a great lump of golden butter in the churn, with the frog sitting on top picking his teeth with his hind foot. The moral of this was, "keep kicking."

The other poem was written about a lazy man who did not like to churn, so he just set his milk in the pans, put them out under the tree, and went to sleep. There was a pumpkin-vine growing around the house, and, attracted by the milk, it

grew and threw out a couple of tendrils into the pan and sucked up all the milk. When the man woke up he accused the hired man of drinking the milk; but a little later, when they came to take the pumpkin off the vine and open it, they found 3 lbs. of butter inside the pumpkin where it had absorbed the milk.

I made a larger hit with that poem than I have ever done with anything else, and for a time the papers were well filled up with stories about it. One man said he was going to get out a new variety of the pumpkin, which would take care of milk and cream and turn it into butter without the need of any churn or separator. Others told all sorts of stories. One man was going to try the same thing with whisky. In a wet state he was going to feed the pumpkins and watermelons on liquor, and then sell them to go into prohibition territories, where all you had to do was to cut the melon open and find a bottle of fine liquor inside. This I think was what started all these fool stories about feeding sugar and other materials to pumpkins and melons, and having them absorb it. The proposition has apparently gone all over the country, and into all sorts of papers, wherever there are people foolish enough to want this kind of sensation. I don't think this game of feeding sugar to a pumpkin in this way is a bit more sensible than the story the man told me in Colorado.

He said that they had never had any use for their stable manure, so they threw it out of the windows until the manure pile got larger than the barn. Now he found that he must move one or the other, and he hated to do it. Finally he dropped by mistake some pumpkin seed on the manure-pile. Of course in such a situation the vines made a rampant growth. They were very strong; and, as the story goes, the vines grew around that barn, lifted it up, and carried it five rods away from the manure-pile into a new place. That did the work for the farmer, and proved to him the great value of stable manure.

Now, in my judgment that story is just as plausible and just as probable as this proposition of feeding stuff to a pumpkin, as these articles mention. I believe there is nothing to it, and I agree with you that it is a shame that some of these prominent papers should give space to the matter.

I am sorry to bother you with this long letter, but I got going and talked it off.

New York, Sept. 23. H. W. COLLINGWOOD.

Several things impressed me in reading the above story, particularly the fact that friend Collingwood has (like myself) a good wife to throw cold water on some of his hobbies when it seems to be needed. Another is, to be a little careful that somebody in this great wide world does not take for *fact* something you intended only for pleasantry or as a joke.*

THE NEW DIXIE HIGHWAY IN FLORIDA.

The feat performed a few days ago by the drivers of a Maxwell car in covering the East Coast section of the Dixie highway from Jacksonville to Miami, a distance of 376 miles, in 9 hours and 3 minutes, indicates that road conditions have greatly improved, and that the dream of a perfectly paved roadway is about to be realized.—*Tallahassee Democrat*.

The above indicates at least three things, if not more. First, the Dixie highway here in Florida must be in pretty fair shape; second, the Maxwell car seems to be still holding its well-earned reputation; third, we have drivers who can make a speed of over 40 miles an hour, and keep it up on an average for close to 400 miles on a stretch. Does this not beat the average locomotive?



POULTRY NEWS

RAISING CHICKENS IN FLORIDA; ALSO SOMETHING ABOUT "THE HIGH COST OF"

—CHICKEN FEED.

On p. 219, March, I told you about getting only 18 chicks from six dozen eggs, etc. Well, next time I got 59 fertile eggs from 60; but as some of the 60 were toward a month old (as I had only six laying pullets to furnish them, and they had just been thru the "smash up" by express), I got only 48 chicks from the 59 fertile eggs. They were taken out of the incubator right during the great Florida freeze; and the brooder stove I have mentioned *just hit the spot*. You may recall that I have often said no artificial heat is needed for chicks from an incubator down here in Florida, in my opinion. Well, my neighbor Abbott, who raises chicks by the thousand, has never agreed with me; and

since using the stove brooder I have changed my opinion. If I am right, it has *already* made a revolution in growing chicks. It is even better than the *mother hen*. When we have several days of cold rainy weather in succession the hen is compelled to brood the chicks so constantly they get little or no exercise. Again, there are hens that neglect to brood the chicks when they need brooding, or when especial weak chicks want brooding.

Well, days when there was ice in the drinking-dishes almost all day long, and fierce north winds, the chicks around that brooder stove just flopped their little wings and chased all over that 8 x 8 room with

* Some years ago the *Scientific American* printed in good faith some fake potatoes as large as flour-sacks which men were carrying on their shoulders. The editor said afterward that he had been "come over."

the brooder stove in the center. If any chick felt chilly it just went up near the stove; and if others were too warm they went off into the corners of the room. At night they made a circle clear around the stove, and stretched themselves out on the warm sand that forms the floor of the brooder-house. Not one of the 48 has shown any symptom of any trouble. Thirty-two hatched under three hens a little later were put with them, and not one of the 32 has been lost. As we had only about ten days of the "cold wave," the stove was used only about that long; and, by the way, this stove brooder is not an entirely new idea after all. Mrs. Jennie Reed, of Holland, Mich. (who afterward became my brother's wife), raised chickens years ago in the winter by having a coal-stove in the center of a room having only a ground floor, and she made quite a success of it. Of course she did not have the large galvanized hover to deflect the heat down on the backs of the chicks, saving fuel and making the stove much more effective.

Now a word about the "high cost of" chicken feed down here in Florida. Corn is \$2.60 a hundred; "chick feed" containing a very little poor wheat, \$2.75; and other grain in proportion. Wheat is not on sale at any price. The chickens, old and young, "got tired" of corn, and begged for something else. When the freeze came we had quite a lot of potatoes almost ready to dig. Some that were only a few inches high started up again; but a lot had to be dug, even if they were only about the size of marbles. When not too small we baked them in a wire-cloth pan, as I explained a year ago; but the rest were boiled for the chickens. A visitor said such new potatoes as we were giving the chicks were selling in St. Petersburg at 15 *cts.* a quart berry-basket full. Well, the chickens, old and young, liked the potatoes when made into a mash with middlings, and it started the Rhode Island Reds to laying that had been "loafing" all winter; but the potatoes gave out after I had sold about ten bushels at \$3.20, and there were no more for the chickens. I had been trying to make them eat more cassava, giving it to them just as dug; but they didn't seem to care for it. I think I told you last year about getting a cheap root-cutter to grind up the cassava. Well, when the potatoes were gone I tried pouring boiling water on a pail of ground cassava roots, chopping them up and then stirring in enough middlings to make a mash and the whole tribe are now calling

for it every day. The hens are laying fine, and the little chicks are satisfied and happy, and the corn is comparatively untouched. As the cassava here grows almost of itself, even on unfertilized ground, its cost is only trifling. By the way, you may care to know that I sent a root of cassava to the recent State Fair at Tampa, and got the first premium. I regret I forgot to weigh the big root; but I remember it was almost all I wanted to carry. It was as big as my leg (pants and all), and almost as long. On p. 282, March 15, 1916, you can see a picture of some of the cassava roots.

Now, cassava is not only a good food for chickens but is good for people, and furnishes the tapioca of commerce. Who knows but that it may help to reduce "the high cost of living" all around when potatoes threaten to be \$5.00 a bushel?

FOR A. I. ROOT ON THE MILK GOAT QUESTION.

About two years ago I got interested in the milk-goat question. I did a great deal of looking around before I found where to buy one or two. I finally found them and bought two. They came fresh last spring in April. One of these goats is a half-blood Toggenburg. The other is a scrub, I think. The man I bought her from said she was a Spanish Maltese. She looks more scrub than anything else to me. The grade Toggenburg gave three quarts of milk till along in August when she dropped to about two quarts, which she is still giving now, Nov. 11. The scrub gave, when fresh, a little over a quart per day at first, then dropped to about three-fourths of a quart which she still gives. The milk from the Toggenburg grade tests three and nine-tenths butter fat, while the scrub's milk tests four and nine-tenths. The milk is as good as any milk I ever tasted, and I think a little better than cows' milk. There is absolutely no difference in the taste of goats' milk and cows' milk that I can detect—no goat taste whatever. It agrees with me much better than does cows' milk. It has no tendency to make me costive as does cows' milk. I have not yet detected the least goat odor from the does, and I now have five. The buck I have is a young fellow; and as now is the rutting season he has the goat odor, but not very strong. It likely will get stronger with age. Out of the rutting season I have found little if any odor on the buck, and none at all on the does at any time. I am getting to be enthusiastic on the milk-goat question. I have found two publications published in the interests of milk-goat breeders. I learn there are thousands of them on the Pacific coast. There they sell goats' milk at 25 cents per quart, and cheese up to \$1 per pound, and seem to find all the market they need. I also found that a pure-bred milk goat of any breed was hard to buy and very high in price. I have been trying to buy a pure-bred female. They have been priced to me from \$75 for a spring kid up to \$200 for a doe three years old. A pure-bred buck can be had at a much lower price. I have the buck, and intend having the doe. Good grades that will give two to four quarts of milk can be bought for \$20 to \$50. It looks to me like a nice side line for a beekeeper. I have a little land, 5½ acres. It costs little to keep a goat or two. Eight can be kept with the same money that one cow can be kept. They are pleasant to have around. They are great pets, and very intelligent. I believe the milk to be very beneficial to me, and I enjoy the goats themselves. I intend giving them a good trial any way.

Pure-bred and nearly pure Toggenburgs have given more than 6 quarts per day.

Sabetha, Kan.

FRANK HILL.

TEMPERANCE

"AND GOD SAID, LET US MAKE MAN IN OUR IMAGE."

Our churches in Bradentown, Fla., have an excellent custom of holding union temperance meetings about once a month, and it often fills our largest churches to overflowing. I was so much impressed with the following from one of our able attorneys, Mr. G. P. Smythe, that I persuaded him to give it to me. Please notice particularly his concluding summing up.

THORO PREPAREDNESS.

We have recently heard a great deal about preparedness. During the late national campaign the various candidates for office were falling over each other to get to the front seat on the preparedness band-wagon. The candidates of the two old parties spent much time and energy in telling the people how important and necessary it is to be prepared for war. Some outlined their plans for preparedness, including universal military training, etc. Having confidence in the wisdom and sincerity of these great men, watchfully I waited, with eager ear to the ground, hoping to hear that some one would have the foresight and moral courage to propose national prohibition as a first step toward preparedness. But I waited and listened in vain. The campaign is over, the election has passed. We are still drawing nearer the vortex of an awful war, and I haven't yet heard either of the old parties suggest prohibition as a means of preparedness. I insist we can never have thoro preparedness without national prohibition. Thoro preparedness can not precede prohibition, but must follow it; and the sooner we have prohibition, the sooner we shall be prepared and the easier it will be. This is not merely a theory, but the experience of some of the great nations of Europe.

The people of the United States pay over two billion dollars a year for liquor. Investigation shows that about three-fourths of all crime in this country is caused by strong drink. To maintain courts and prisons to try and punish these liquor-made criminals, costs at least two billion more. To maintain the inmates of almshouses, hospitals, and insane asylums, sent there because of drink, costs a billion more. The loss of health and efficiency to labor by those who drink will run into the billions. From an economic standpoint strong drink is costing this country eight or ten billion dollars annually. We do not know how to estimate in dollars and cents the wasted tears of the innocent, the anguish of sleepless nights, the heartaches of anxious mothers, the blasted hopes and broken health of unhappy wives, the pitiful wail of hunger, nor the cries of cold, neglected children; yet these too are the natural results of the liquor-traffic.

Yes, give us national prohibition first, and with this ten billion dollars saved annually, the first year we could put one thousand modern battle-ships on the oceans, costing ten millions each, that could overcome all the navies of the world. The second year we could build, arm, and equip a continuous chain of forts around all the border of this great country. The third year we could arm, equip, and furnish supplies to an army of ten million men—an army made up from a sober, moral, healthy citizenship, with a physical stamina for endurance and hardship, worthy of all our best American traditions. With such a navy and fortifications, and such an army, we should surely be prepared for whatever eventuality might come, and all provided by the savings of three years caused by national prohibition.

Not only should we be prepared to resist a foreign foe, but in the preparation we shall have overcome a more dangerous and deadly foe at home than any that threatens us abroad. May the God of nations save us from ourselves. We become very much alarmed over the presence in this country of a few unorganized hyphenated Americans who are loyal to some foreign power; but we ignore a powerful and well-organized enemy here in our very midst. The kingdom of Alcohol, with the powerful and well-organized forces of the liquor-traffic, wages relentless war on us day by day and year by year. It ignores our laws, it works plots, conspiracies, and treason. It violates every law of civilized warfare; it stupefies the sensibilities of our people with poisonous drugs; it murders sixty thousand of our citizens every year, and at least that many more are rendered mentally, physically, and morally deficient. It makes more widows and orphans than would the armies of any foreign foe. No preparedness is thoro that does not take into account this deadly foe within our own border.

With a preparedness founded on national prohibition, we should not only be prepared for war, but, what is better, we should be prepared for peace. With a sober, healthy, vigorous citizenship we should be prepared to vie with all the vicissitudes of life; prepared to contend better with the ever increasing cost of living; prepared to protect our homes against the summer's sun and the winter's cold; prepared to supplant poverty, misery, and woe in a million American homes with sunshine, peace, and joy; prepared to give to the mothers of this land sons worthy of their sacrifice and love; prepared to send home to the wives of this country sober, industrious, and faithful husbands; prepared to give to the fair daughters of this land young men worthy of their hand and heart; prepared to give to generations yet unborn an inheritance of brain and brawn and soul, that our children and our children's children may be true to form prescribed by Holy Writ, where it was said by the Creator, "Let us make man in our image."

Yes, first give us national prohibition as the foundation upon which to build all other plans for national preparedness."

"GOD'S KINGDOM COMING."

The following "summing up" by Dr. Frank Crane we clip from the *New York Globe*:

PROHIBITION.

It is quite probable that within a few years the manufacture and sale of alcoholic beverages will be absolutely prohibited thruout the United States.

The prohibition movement seems to be advancing with grim momentum. A majority of the states of the Union have prohibition laws. About 60,000,000 Americans live in dry territory. Eleven cities of over 100,000 population have no licensed saloons. Among these are Detroit and Seattle, with over 200,000 population each.

There are strong indications that congress will propose, for ratification by the states, a constitutional prohibition amendment. Two years ago it voted 207 to 194 in favor of it.

The movement appears to have got out of the hands of the "evangelists," and to have assumed a far more formidable aspect, because backed by scientists, officials, business men, and practical people generally.

Medical science has decided that alcohol is not a stimulant, but simply liberates the lower by stupefying the higher powers of the brain.

Insurance companies have piled up evidence showing the increased mortality of drinkers.

Experts have demonstrated the connection between alcohol and insanity, poverty, and prostitution.

Civic bodies, such as the New York Board of Health, organize definite campaigns to induce people to abstain from liquor as a matter of public health.

Literature is attacking the strong, romantic, emotional appeal of alcoholism.

Business is against liquor. The drinking man is discounted everywhere, and an increasing number of business concerns will not give employment under any circumstances to the man who drinks.

A large number of periodicals exclude liquor advertisements.

Added force is given the prohibition wave in America by the acts of Russia, France, and England during the war; all have more or less restricted alcoholism. Five provinces in Canada are dry.

It looks as if the world were rapidly making up its mind that the arch-enemy of mankind, alcohol, that has debauched the imagination and twisted the reasoning powers of the race for so many centuries, will have to go.

Curiously enough, the labor organizations, which have most to gain from universal abstinence, have done little or nothing to advance the movement.

Curiously, also, it seems to be the West and South that are threatening to impose prohibition upon the reluctant Northeast.

Robert A. Woods, in a recent article in the *Survey*, quotes a Southerner's remark, that "as the North had put abolition over on the South, now the South was going to put prohibition over on the North."

SOME KIND WORDS AND ALSO SOMETHING ABOUT A PART OF CALIFORNIA.

Brother Root:—With all the probable crooked work done in and around San Francisco at our late national election, won't you, as well as I, be very thankful that California, south of the Tehachapi, seven counties with an area exceeding the states of Ohio, Indiana, and Illinois, voted solid 6 to 1 dry? We worked night and day to bring this about; also take notice that some four other states voted dry. May God grant you the years to live to see 48 of them dry is my daily prayer. Yours truly,

Glendale, Cal., Dec. 30, 1916. G. W. BERCAW.

Do you know that GLEANINGS has been in our family for well nigh 40 years?

"STRAWS (A GREAT LOT OF THEM) SHOW THE WAY THE WIND BLOWS."

Mr. A. I. Root:—I enclose clippings from the *Milwaukee Journal*. They will show you what the anti-saloon people are doing in Milwaukee, which is, so far as I know, the last stronghold of the brewers in this country. The brewers' advertisements will show what they are expecting to happen soon.

There is a bill before the Wisconsin legislature, which provides for a vote of the people of the state in November, 1918, on the question of state-wide prohibition. I expect it to pass, and I expect the voters to vote the state dry. I suppose I have not sent all of the brewers' advertisements that the *Journal* published. They have been appearing for some weeks past, two or three times a week.

I hope you will live to see state-wide prohibition all over the Union. It is not far off.

Milwaukee, Wis.

JAMES L. HOWARD.

Our friend sends with the above five double-column advertisements. One of the five has the heading:

"DESTRUCTION WITHOUT COMPENSATION IS CONFISCATION,"

and this is a fair sample of the other five.

ANOTHER STRAW.

One of our readers sends us a flaming advertising sheet sent out by a St. Louis liquor dealer which starts out as follows:

"Here is your chance to get some fine old whisky at *half price!*" Great bargain offers! Very rare and old whiskies at *half price* on account of prohibition. I don't want to get stuck! Bills now pending in Congress and in the Legislatures may stop all liquor shipments to "dry" states! This would mean that our large stock of rare and old whiskies could not be sold, and that we would be "stuck."

A KIND LETTER, AND A GEM OF A POEM FROM ONE OF ENGLAND'S FAIR DAUGHTERS.

The letter below amply explains itself; and the poem following is just now quite in harmony with the wave of reform both in England and America.

Dear Sir:—My brother, Mr. T. W. Abbott (Abbott Bros.), knowing you to be a strong advocate of temperance, has asked me to send you a copy of my verses, which I have great pleasure in doing. If you like them, please make any use you can of them. I shall be only too thankful for them to be of any use in so good a cause. They are not yet published in this country, as we have not decided on the best way of bringing them before the public; but we intend to do so later on.

In alluding to my brother, Mr. Abbott, I have, of course, conveyed to you that I am one of the daughters of Mr. C. M. Abbott, editor of the *British Bee Journal*. At the time when he was publishing it and carrying on business at Fairlawn, your address was very familiar to me, and my brother has spoken of you so often that I almost feel that I am writing to a friend altho I have not had the pleasure of meeting you. My brother is well, and desires to be very kindly remembered to you. Hoping that you will like the verses, and that thru you they may do good, believe me,

Sincerely yours,

E. E. M. FREEMAN.

Toybridge, Lady Margaret's Road, Southall.

THE SUPER-THIEF.

Yes, I'm a thief; and, "the greatest of these,"
Unarmed and unmasked I can take what I please.
In cottage or castle, in mansion or hall,
There is nothing too precious and nothing too small.
I go with my lord when he sits at the feast,
And leave on his visage the mark of the beast.
In my lady's boudoir I enter by stealth,
I rob her of innocence, beauty, and health.
It is part of my nature, and freely confessed,
To do the most harm where they love me the best.
I am trusted alike by the poor and the rich,
But the working man's home is my favorite pitch;
I take of his wages a very large share,
And then steal his job tho it seems hardly fair.
From the cupboard and pantry, the wardrobe and shelf,
If there's anything good—why, I just help myself.
I empty the cellar and leave a cold hearth,
While nothing but ashes I strew in my path;
And still they entreat me: "Oh! stay with us, stay,"

So fair is my promise, so pleasing my way.
Now you know of my faults; but none will deny
There are wonderful things I can do if I try.
I can raise to the peerage a man of low birth,
I can strive with the mighty and bring him to earth;
I can kill a brave soldier and sink a big ship,
Entangle a bishop, and cause him to trip.

All this I can do, and still leave much untold,
For I cheat the most cunning and scare the most
bold.

As to why I'm at large—are you sure you can't
guess?

Ask my lords at Westminster, the Commons, the
Press;

But for their friendly aid I should soon come to
grief,

For to scotch the offender is death to the thief.

Ask the parson and doctor—they know all my ways;
I have lived by their sanction and grown by their
praise;

And so I am flourishing, scornful, and free;
You must catch my fine friends if you want to catch
me.

ALCOHOL.

ALCOHOL "ONE OF THE MOST POWERFUL ALLIES OF THE PNEUMONIA GERM."

If the following is true, which we clip
from the *Plain Dealer*, what is there wrong
about *state-wide* and *nation-wide* *prohibition*?

PNEUMONIA SCARES NEW YORK; VIRULENT WAVE
CAUSES 2377 DEATHS IN NINE WEEKS.

What is described by the Department of Health
as a peculiarly virulent form of pneumonia has
caused 2377 deaths in this city during the last
nine weeks, or 534 more than during the corres-
ponding period a year ago. The department says
there is little indication that the infection is abat-
ing, and repeats its warning against alcohol as one
of the most powerful allies of the pneumonia germ.

THE YOUTH'S INSTRUCTOR TEMPERANCE AN- NUAL.

The issue for 1917 is a gem, as it has
been for years past. The picture on the
cover is a triumph of art, and every one of
its 20 pages, more or less illustrated, ought
to stir our nation. Here is one from the
first page:

A missionary in Africa ordered a case of Bibles
for his work of evangelization. When he went to
the freight office to get the Bibles, he was in-
formed, that in order to get the box, sixteen thousand
cases of liquor had first to be removed.

Price of the annual, 10 cts.; in lots of
25, 5 cts. Address Tacoma Park Station,
Washington, D. C.

"WE ARE MARCHING ON."

The *Woman's Journal* sends us an ad-
vance proof, dated March 17, as follows:

SUFFRAGE NEWS.

A bill giving Vermont women tax-payers the right
to vote in municipal elections passed the House by
a vote of 104 to 100.

"CLEAN, SWEET, AND PURE" (?) CIGARETTES.

Mr. Root:—I take the liberty of writing you a
few lines concerning one of our worst evils, the
cigarette. I am enclosing three advertisements
clipped from our county papers which the American
Tobacco Company are using to "educate" the pub-
lic, and particularly the young, concerning the
"goodness" of their brand of "coffin-nails."

Our fair state has been covered like a blanket with
these advertisements. It certainly is the height of
absurdity to compare such nice things as soap,

flowers, and honey with such nasty things, not to
mention a level, or picture a hatchet such as might
have been the one figuring in the "cherry-tree"
episode of the immortal George Washington. It is
suggestive.

I recently called down an editor of one of these
papers which has never yet been guilty of printing
whisky advertisements; but now each issue carries
such poisonous material. I compared the cigarette
advertisement to the whisky advertisements, and
asked him if he thought there was much difference
in the advertisements or in the evil resulting from
such advertising; also about the probability of his
boy being influenced, and, later, becoming a cigar-
ette fiend. It had effect.

B. I. B.

Stanford, Ky.

With the above letter come three double-
column clipping, from home papers. At
the head of one of them we read: "*Clean,*
sweet, and pure" applied to their brand of
cigarette; and to illustrate it they picture a
nice cake of soap, a good picture of a
section of honey, and a *lily*. On another
sheet they show a carpenter's level, and the
hatchet and cherry-tree to emphasize the
fact that the cigarette is "on the level" and
"can't tell a lie." All this is guaranteed by
the famous *American Tobacco Co.*

WHAT TO DO WHEN YOU ARE "CATCHING" A COLD.

The following from the *Ohio Farmer* ex-
presses my views exactly:

The season of changeable weather is here, when
we are alternately too warm or too cold, when, as,
one contributor puts it, "the 'going' is likely to be
staying at home," when the sun and the wind, the
snow and the rain are likely each to be in the lead
all in the same day. Are we prepared to withstand
their onslaughts? or are we going to have to give
way and submit to colds, coughs, pneumonia,
pleurisy, etc.? It all depends on how well we are
caring for our machinery. Sufficient rest, fresh
air, proper amount and proper selection of food,
proper exercise, the right clothing protection, and
regular and sufficient elimination of body waste, are
the best antidotes. It is astonishing what a lot of
abuse the human machine can stand up under, and
how quickly it will respond to fair treatment when
it has been abused. When we find that a cold is
creeping upon us, often a very simple, easy bit of
treatment can head it off. For example, instead of
dosing with medicine that the stomach would likely
be much better off without, try getting rid of the
contents of the digestive tract as fast as possible.
Flush the system with plenty of water, preferably
hot (not scalding, however), go to bed early, with
windows wide open and with your head and body
warmly protected. Before you drop off to sleep
spend a few minutes breathing deeply of the fresh
air. In the morning lie and breathe similarly for
several minutes, with mouth closed if possible, and
the chances are that you will be ready for a good
breakfast.

SOME VERY KIND WORDS FROM A LONG-TIME FRIEND.

Friend Root:—Enclosed find \$2.00 which please
turn over to renewal of my subscription to GLEAN-
INGS. To tell the truth, it is solely on your account
that I take GLEANINGS now. You do not know, my
friend, what an influence you have had on my life

ever since, along in the 70's, I saw your advertisement in good old Orange Judd's *American Agriculturist*, "Friends, if any of you are interested in bees or honey, write to A. I. Root, Medina, Ohio."

That was a turning-point in my life, for I took the genuine bee-fever from reading your literature, and then followed fast the ups and downs in my beekeeping career. Many errors and mistakes I made—among them sending you an order of over five hundred dollars for chaff hives in the flat—hives that proved a perfect nuisance; then the putting in of nearly 1000 colonies of bees in Simplicity hives with their beveled edges, and thin-topped metal-covered frames that sagged so when filled with brood or honey—costly mistakes to me, but unavoidable in the evolution of the times and profession.

I do not believe I have had any personal communication with you since I have come out here to this wonderful country, now nearly two years. I should have preferred Florida; but as a number of my children were out here, and the others preferred California to Florida, and I wanted to be with them, I came here, and do not in the least regret it. We are situated in the suburbs of Los Angeles, tho our postoffice is San Gabriel. Of course I have a few bees; but my hobby in life now is my flowers, chiefly gladioli, and I spend many hours busily employed every working day of the year among them. I enjoyed wonderful health until last October, when an attack of rheumatism laid me up for three months, and I have not now the vigor I had before the attack. I read all you write, and you and I are in almost perfect accord on every subject. I am enclosing a clipping showing the great benefits that have resulted in abolishing the manufacture and use of vodka, and wish there were some method by which we could obtain the same results here with whisky and beer.

Does not the great war astonish you more and more? Surely they are mad, insane, blind with fury. My old grandfather used to tell me, when I was a boy, "whom the gods would destroy they first make mad," and it is surely now being verified. I hope and pray it may soon be over.

I am in my 78th year, and trying to live according to Terry's teachings. I am sorry he has passed on. He should have lived longer. His was a useful life. Yours is also, and may it be prolonged to the century mark is the wish of your old friend.

San Gabriel, Cal., July 21. E. T. FLANAGAN.

P. S.—Now, friend Root, should you ever visit Los Angeles again I really want you to call on me and let us go over some of the past, and have a good talk of old times; for, altho I am deaf, I manage to hear much that is said by watching the lips of the speaker. Just let me know, and I will give you clear directions how to find me. I have a happy home, and no one was ever blest with better children than I have.

My good friend Flanagan, one would suppose that, after investing \$500 in hives that proved useless, and frames with top-bars that sag, etc., you would hardly feel so friendly. It is very kind of you indeed to let me off so easily by saying "unavoidable in the evolution of the times," etc. We take it you must be one of the sort that "suffer-eth long and is kind." Perhaps chaff hives were not needed in your locality—certainly not in California; but you may be surprised to hear me say just now that not only here in Medina, and within a large part of the north territory, many people are coming to the conclusion that the old chaff hive of years ago is giving better results than any other form of wintering, not excepting cellaring. Ernest said only a few days ago he did not know but beekeepers here in the North would have to go back to the old chaff hive. When I made frames with those thin top-bars I intended wire braces to sup-

port the top-bar. The metal-corner frames were, I believe, generally discarded because of the fashion of moving hives to out-apiaries in order to get a better honey-flow, etc.

I heartily agree with you in regard to the wicked war. Should I get to California again I will most assuredly hunt you up.

GROWING OLD GRACEFULLY.

-In speaking of the good woman who has lived to be 102 years old I forgot to mention that the title of the article was "Growing Old Gracefully." At the close of a letter from our long-time friend Irving Keck he writes as follows:

This summer the old friends are rapidly slipping away. Within a month not less than half a dozen old schoolmates and intimate associates have "fallen asleep," and the summons may come for me any day. The days of "getting my shoulder to the wheel" and "staying on the job" are done. All I can hope to do is to "keep out of the way" from this on.

IRVING KECK.

Bowling Green, Fla., July 24.

My good friend Keck, I agree that we old fellows should try to avoid getting in the way; but I do not believe we need to drop out entirely. If we look about us we can find many opportunities to lend a helping hand. I want you to hold on as long as a kind Providence permits, in order that I may not feel all alone, should that same Providence permit me to remain after the rest of you have "fallen asleep" as you express it.

APPROVES OF MONTHLY.

H. M. Moyer of Boyertown, Pa., writing under date of Dec. 22, says: "I congratulate you on GLEANINGS becoming a monthly. A swarm of bees can do more work in one hive than they can if divided in two hives. So with GLEANINGS—one copy a month is better than two. I have been a subscriber and reader of GLEANINGS for 33 years or more."

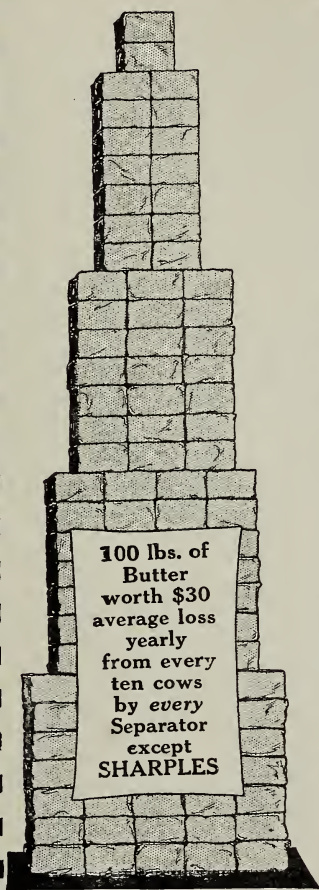
ALTHO CLOSE TO 80, STILL A BEEKEEPER AND GARDENER, AND A HINT AS TO THE REASON WHY.

Mr. A. I. Root:—I have been a reader of GLEANINGS since 1879, and have enjoyed all your articles very much; and I feel sure you will be glad to hear that about 1882 I was one who took the pledge against smoking, and have kept it ever since (no smoker in the question). I know that my health was improved, and has remained good to this time. Had it not been for your timely writing I don't think I should have been able to write at my age. I am now nearing my 79th birthday, and look after forty colonies of bees and a garden. I met you and Mr. Calvert at Toronto about 1884, then you and your two sons at Detroit a few years ago at the National convention; and now I hope you and your partner in life may be long spared to each other, and be able to conduct the Health and Home papers.

My wife and I look for something good when GLEANINGS arrives.

Lindsey, Ont., Jan. 29.

Lost! 100 Lbs. of Butter!



100 lbs. of
Butter
worth \$30
average loss
yearly
from every
ten cows
by every
Separator
except
SHARPLES

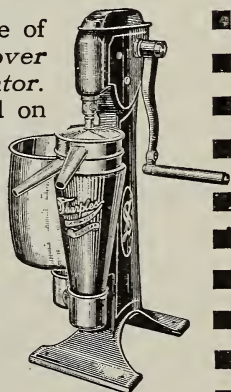
Yes, you certainly did lose that \$30 worth of butter last year, if you milked ten cows and did not use a Sharples. For no other separator skims clean when you turn it *too slow*—and 19 out of 20 people do turn too slow much of the time. The wonderful new Sharples is the *only* separator that skims clean, regardless of how fast or how slow you turn it, because the “suction-feed” makes the milk feed vary with the operating speed. The

SHARPLES SUCTION-FEED CREAM SEPARATOR

Will Avoid This Loss

Will save you the pile of butter (illustrated) *over every other separator.*

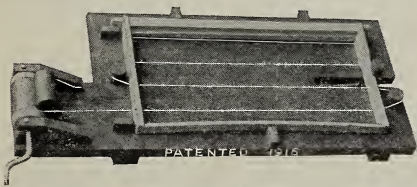
The figures are based on proven facts taken from Purdue Experiment Station Bulletin 116, which sets forth the great loss of cream from turning *ordinary* separators below speed. The Sharples is the *only* separator that delivers *even* cream, too, at all speeds. Ruggedly built for hard service. Over a million users. Send for catalog to Dept. 126



The Sharples Separator Co., West Chester, Pa.

Also Sharples *Milkers and Gasoline Engines*

Branches: Chicago San Francisco Portland Toronto



WRIGHT'S FRAME-WIRING DEVICE

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands. Price, \$2.50, postpaid in U. S. A.

G. W. Wright Company - Azusa, California

BEEKEEPERS' SUPPLIES

Send for new 1917 price list now ready. We are also in the market at all times for extracted and comb honey in any quantity. Give us a chance to bid on your supplies. We can save you money.

The M. C. Silsbee Co., Haskinsville, N. Y.
P. O., Cohocton, N. Y., Rt. 3.

Delivered to You Free



The New
Electric Lighted
RANGER
Motorbike Model

We have placed a Special Deposit of \$5000 in the great First National Bank of Chicago to guarantee to you the faithful performance of the unusual trial agreement.

Choose from 44 styles, colors, and sizes in the famous "RANGER" Line of bicycles. All are pictured in natural colors in our new 1917 catalog. There are many other models also—in fact the most complete line of bicycles in the world, all at **FACTORY PRICES**, from \$15.75, \$16.95, up. There is a Mead bicycle to suit the taste of every rider—electric lighted Motorbike models, Racers, Juniors for children; Ladies' models too—all at prices made possible only by our **Factory-direct-to-Rider** selling policy.

30 Days Free Trial We will send the "RANGER" bicycle you select, **FREIGHT CHARGES FULLY PREPAID TO YOUR TOWN**, for thirty days free trial—actual riding test. We pay return charges if you decide not to keep it, and make no charge for wear and tear during trial. We make no effort to influence your decision. The trial is all at our expense.

Factory-to-Rider Back of your "RANGER"—if you decide to keep it—is the oldest and most successful bicycle concern in the world, with a Service department that cares for the parts and repair needs of more than a million riders. With every "RANGER" we ship goes a **Certificate of Guarantee for Five Years**.

Parts & Repair Lamps, Horns, ready-to-use front and rear wheels, Inner Tubes, Tool Kits, etc., etc. Repair parts for all bicycles and coaster-brakes, all accurately pictured and described in the sundry pages of the big new **Ranger Catalog**. All the latest imported and American novelties in equipment and attachments at prices so low they will astonish you.

Rider Agents everywhere to ride and exhibit "RANGER" bicycles. Select the model you prefer and, while you ride and enjoy it, make money by booking the orders of your neighbors.

Send No Money but write today for this new 1917 catalog, also full particulars of the great new offer to send, all charges prepaid, the "RANGER" bicycle you select for **30 Days Free Trial**. You cannot afford to buy a bicycle, tires or sundries without first learning what we offer.

MEAD CYCLE COMPANY

Dept. C-153 CHICAGO



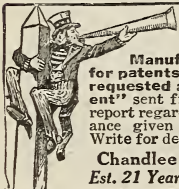
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This
Book

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You may be prejudiced against the Jersey because you don't know her. Look her up. She's the *Money Cow*.

Get This Book—a history of the breed and full of very interesting tests and facts. It proves conclusively that for pure dairy type, economy of production, richness of milk, long life and adaptability to feeds and climates—all these combined—she stands way above them all. This book "About Jersey Cattle" is free. Get your copy now. You'll find it mighty good reading.

The American Jersey Cattle Club
405 West 23rd Street, New York City



Inventions Wanted!

Manufacturers constantly writing us for patents. List of inventions actually requested and book "How to Obtain a Patent" sent free. Send rough sketch for free report regarding patentability. Special assistance given our clients in selling patents. Write for details of interest to every inventor.

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Farm, Garden and Orchard Tools
Answer the farmer's big questions: How can I grow crops at least expense? How can I get my spraying done and on time? Use an

IRON AGE Engine Sprayer



No. 115-P
Greatest
combined
field and
orchard
sprayer

Sprays 10 rows potatoes, 5 rows canteloupes, cucumbers, etc., at one operation and at 200 pounds pressure. The first and only sprayer adapted for so rapid field-work and, at the same time, unexcelled for orchard use. Driven by 4-2 H. P. NEW VAY ENGINE—quickly interchangeable with our new Iron Age Engine Driven. We make full line of potato, spraying, cultivating and garden tools. Write today for free booklet.

Bateman Mfg Co., Box 20H, Grenloch, N.J.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog.

AGENTS WANTED EVERYWHERE.
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Grow Bigger and Better Vegetables

You can make your Gardening Profitable and Easy with a

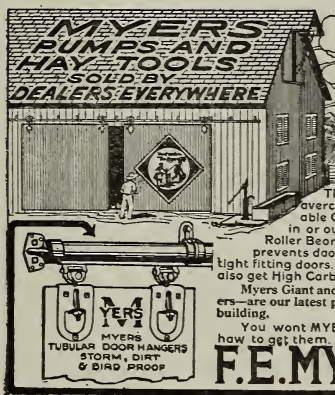
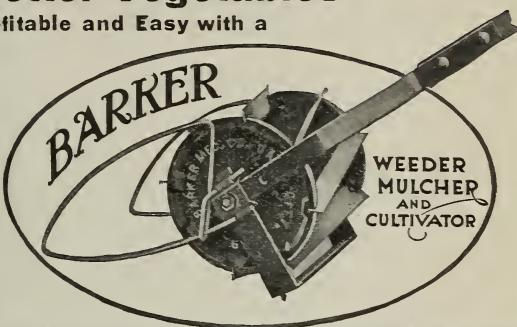
BARKER Weeder, Mulcher, Cultivator.
Three garden tools in one.

Kills the weeds and mulches
soil IN ONE OPERATION.

Eight reel-blades, working in combination with a stationary knife which passes just below the surface, destroy the weeds and pulverize the crust into a level moisture-retaining mulch.

Has shovel attachment for deeper cultivation; also leaf-guards to protect grown-up plants. "Best Weed Killer Ever Used." Will pay for itself in a single summer. Write for illustrated catalog and special factory-to-user offer.

BARKER MFG. CO., Dept. 10, David City, Neb.



You Can Open and Close the Doors on Your Barns, Sheds, Garage and Similar Buildings, the Year Through, without a Single "Cuss Word" if They Are Hung with

MYERS
EASY TO PUSH TUBULAR OR STAYON PULL DOOR HANGERS

They roll away the old-time door troubles by preventing and overcoming the bulky, off-the-track or frozen-up door. The Adjustable Construction permits a door to be raised or lowered, or moved in or out, as conditions require—A monkey wrench does the trick. Roller Bearings and Large Trolleys insure light operation. Stayon Device prevents door being thrown off the track. Flexible Hinged Joint produces tight fitting doors. You get all these features on MYERS DOOR HANGERS. You also get High Carbon Flat Stayon Track or Reinforced Girder Tubular Track. Myers Giant and New-way Hangers for Tubular Steel Trac.—The All Weather Hangers—are our latest productions—They add the finishing touch in door service on any building.

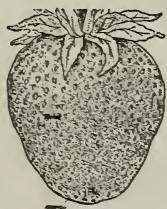
You want MYERS—Year Through—"Easy Door Ways", and our Catalog tells how to get them. Write us or ask your dealer.

F.E. MYERS & BRO. 351 ORANGE ST. ASHLAND, OHIO.

EVERY FAMILY

should have a copy of the new patriotic song entitled
"How would YOU Like to be a Slave?"
Soul-stirring words set to a lovely melody. Soprano solo with piano accompaniment. Only 35 cents post-paid, silver or P. O. order. Address

C. O. Weidman, Medina, O., Pub'r and Prop'r



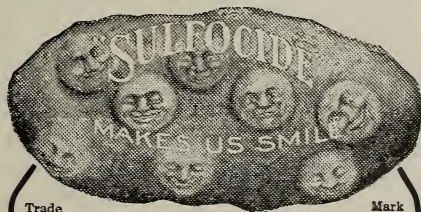
4 MONTHS FOR 10¢
Trial Subscription To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.



A Powerful Fungicide for Fruits, Vegetables and Flowers

Peach Leaf Curl, Brown Rot, Apple Scab, Grape Mildew, Potato Blight, Cucumber Wilt, Bean Blight, Rose Mildew, etc.

Most inexpensive. 1 gal. makes 200 gals. spray. \$1 to \$2 per gal. according to size package.

Booklet free.

B. G. Pratt Co. Dept. 6 50 Church St., N. Y. City

FREE!

POSTPAID

My Copyrighted Book "How to Judge Engines" tells how high-grade semi-steel engines are made, advantages over cast iron, how common coal oil in a WITTE reduces power cost 65 per cent. Write today and get my "How-to-Make-Money" folder, and latest

WITTE Engine prices. Ed. H. Witte,

WITTE ENGINE WORKS

1937 Oakland Ave., Kansas City, Mo.
1937 Empire Bldg., Pittsburgh, Pa.



QUEENS

For Sale

Red-clover 3-band Italian queens; Root's, Moore's, Davis', extra-select stock, mated with Geo. B. Hows' famous select drones. I know none better for honey-gathering, wintering, beauty, etc. I guarantee 90 per cent pure mated if queens are returned to me. Queens or money back in a reasonable time. No foul brood, no bee disease; apiaries inspected by Mr. Rea and Prof. Franklin Sherman, Jr. Mr. Rea is our bee inspector of this state.

	Price before July			After July 1st		
	1	6	12	1	6	12
Untested queen . .	.75	4.00	8.00	.70	3.25	6.50
Select untested . .	1.00	4.50	8.50	.80	3.75	7.00
Tested	1.25	6.00	10.00	1.25	5.00	9.00
Select tested . . .	1.50	8.00	13.00	1.50	6.00	10.00
Extra select tested	2.00	10.00	15.00	2.00	8.00	13.00
½ lb. bees with qn	2.00	10.00	16.00	1.75	8.00	14.00
1 lb. bees with qn	2.50	12.00	20.00	2.00	10.00	17.00

I can furnish tees in lots of 25, 50, and 100 pounds. I am in position to give prompt service this season. My bees are of a famous foul-brood-resisting strain.

H. B. Murray . . Liberty, N. C.

IRON AGE

GARDEN TOOLS

Answer the gardener's big questions:
How can I grow plenty of fresh vegetables with my limited time?
How can I avoid backache and drudgery? Use

IRON AGE Wheel Hoes and Drills

Do the work ten times faster than the old-fashioned tools. A woman, boy or girl can push one. 28 combinations—easily adjusted. Light, strong and durable. Prices, \$3.25 to \$15.00. Will help you to cut the high cost of living.

No. 1 Double or Single Wheel Hoe

Write us for free booklet today.

Bateman Mfg Co., Box 20 G, Grenloch, N.J.

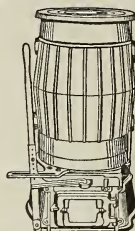


VICTOR and HOME VICTOR

Multiple System Water Heaters for House Heating

Heats bath and kitchen boiler too. ONE STOVE AND ONE FIRE YEAR ROUND. There is nothing like it. Send for booklet.

S. V. Reeves, Mfr.
Haddonfield, N. J.



Mr. BEE RAISER, Attention!

At last a practical device which will save you many stings. . .

The Ha-Ha Head-protector

Only practical, durable, and sensible protector made. This protector is made from a special make of BRASS WIRE GAUZE; has transparent and unbreakable eye-piece; has mouth-piece so wearer can smoke. Will fit any hat, and can be adjusted in ten seconds; folds up in a small package; can be carried in vest-pocket. Weight about 4 oz. Will not tear, rot, rust, nor break. Very comfortable to wear. Will protect you from mosquitoes, flies, gnats, as well as from bees. From your dealer of any where in the U. S., postage prepaid, price \$2.00.

Rhoades Manufacturing Co.

Sault Ste. Marie, Mich.

We believe in Preparedness



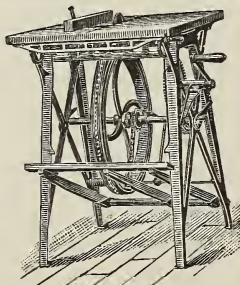
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.
545 Ruby St.
ROCKFORD, ILLINOIS



BEESWAX WANTED

You will save money and freight on your 1917 foundation by shipping us your beeswax and paying only for its manufacture into "SUPERIOR FOUNDATION" (Weed process).

SUPERIOR HONEY CO., Ogden, Utah



TALKING QUEENS

Laws' Queens Speak for Themselves

Please remember Laws' queens have stood the test of continuous advertising in this journal for this the 28th season. Thousands of customers have testified to the merits of Laws' bees and queens, and if there is a displeased customer I do not know it.

Untested will be ready in April; after which see the following table.

	April to June			June to November		
	1	12	100	1	12	100
Untested	\$1.00	\$ 9.00	\$ 75.00	\$.75	\$ 8.00	\$ 65.00
Tested	1.25	10.00	85.00	1.00	10.00	75.00
Select Tested	2.00	18.00	120.00	1.50	15.00	100.00

Breeding queens: Guaranteed none better, at all times: each \$5.00

Combless Bees AFTER MAY 1st.

1 lb. package, \$1.50; 5 to 10 packages each, \$1.25; 10 to 50 packages, \$1.15
2 lb. package, 2.50; 5 to 10 packages each, 2.25; 10 to 50 packages, 2.15
3 lb. package, 3.50; 5 to 10 packages each, 3.25; 10 to 50 packages, 3.15

Price of queens to be added to above packages.

When 10 or more packages are bought, empty carriers to be returned at my expense.

My queens are all reared in full colonies, plenty of young bees and abundance of fresh honey in the hives. No other plan is so conducive to full-developed and long-lived queens.

My facilities are such that I can mail from 5000 to 6000 queens each season. Circular on application.

Purity of stock and safe delivery guaranteed to your express or post office on all bees and queens from my yards.

Address

W. H. Laws, Beeville, Bee Co., Texas

Q U E E N S

OF QUALITY

Capacity of Yard over 1000 Queens a Month

After 20 years of careful selecting and breeding I now have a strain of bees that cannot be excelled by any. . . . My queens are all bred from IMPORTED STOCK, the very best in the world for honey-gathering and gentleness. They are not given to swarming. What more do you want in bees than the three above qualities?

Prices April 1st to July 1st.

	1	6	12		1	6	12
Untested	\$.75	\$4.25	\$8.00	Tested	\$1.25	\$7.00	\$13.00
Selected untested.	.90	5.00	9.00	Selected tested..	2.00	11.00	20.00

GUARANTEE.—You take no risk in buying my queens, for I guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction. All queens that do not give satisfaction I will replace or return your money. Send for circular.

L. L. Forehand, Ft. Deposit, Alabama

For Sale--- 10,000 lbs. of Bees in Packages--- Spring Delivery

20 YEARS OF SELECT BREEDING GIVES US BEES OF THE HIGHEST QUALITY
BEES FOR HONEY PRODUCTION.....BEES OF UNUSUAL VITALITY

M. C. Berry & Co., Hayneville, Ala.

Gentlemen:—Will want more of your three-pound packages of bees with queens in spring. The two I bought of you last May did all right; one package made 185 sections of honey and gave one swarm and the other made 296 sections and gave two swarms. I am well pleased.

Kimmell, Ind., Jan. 15, 1917.

Melvin Wyseng.

Very Resistant of European Foul Brood, and Safe Arrival Guaranteed.

Swarms of Bees Without Queens April First Delivery

1-lb. packages, \$1.25 each;	25 to 50, \$1.22½ each;	50 to 100 and up, \$1.20 each
2-lb. packages, 2.25 each;	25 to 50, 2.22½ each;	50 to 100 and up, 2.20 each
3-lb. packages, 3.25 each;	25 to 50, 3.22½ each;	50 to 100 and up, 3.20 each

Golden and 3-Band Italian Queens April First Delivery

Untested 75 cts. each, \$65.00 per 100	Tested \$1.25 each, \$110 per 100
Select Untested 90 cts. each, 75.00 per 100	Select Tested 1.50 each, 125 per 100

Queen's wings clipped free of charge.

Write for descriptive price list.

Let us book your order now.

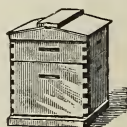
Only a small deposit down required.

LARGEST AND MOST SUCCESSFUL SHIPPERS OF BEES IN PACKAGES

M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.



BEES and QUEENS



We wish to offer to the readers of "Gleanings" a chance to procure some of our fine stock of bees. Untested queens, March, April, May, and June, \$1.00 each, \$5.00 for 6, \$9.00 per dozen. Lots of 25 to 100, at 70 cents each. For larger quantities ask for prices. Best tested queens \$2.00 each. Three races only—Three-Band, Golden Italians, and Carniolans, reared in separate yards.

Bees by the pound in combless packages \$1.50 per lb.; 5 to 10 lb. lots, \$1.25 per lb. In lots of 25 to 100 lbs., \$1.00 per lb. Safe arrival and reasonable satisfaction guaranteed. Our shipping facilities are good and promptness our motto.

THE CRESMER MANUFACTURING COMPANY, Bee Department, Riverside, Cal.

From Root and H. D. Murry's Famous Stock

THREE-BANDED ITALIANS THE BEST. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foul brood. Some call them Long-tongue Red-clover Queens. Satisfaction and safe arrival guaranteed. We are applying for a patent on a bee-shipping Cage that will allow the queen to lay while on the road, which means several days to you. We use pure SUGAR SYRUP, no honey or candy. Now we will ship in these cages during May and June without any extra charge whatever; 10 per cent discount on all orders received with remittance for May and June. No foul brood in any of our yards. Reference, The Guaranty State Bank, Robstown, Texas, or The City National Bank, Corpus Christi, Texas.

	1	6	12	50		Pound packages of Bees.				
Untested . . .	\$1.00	\$ 5.50	\$10.00	\$38.00		1	6	12	25	50
Tested	1.25	6.50	12.00	45.00	1 lb.	\$1.50	\$ 8.50	\$16.00	\$33.00	\$ 65.00
Select Tested	2.00	10.00	18.00	65.00	2 lb.	2.50	15.00	29.50	58.00	115.00

Let us know your wants. Circular free.

Nueces Valley Apiaries Calallen, Nueces Co., Texas

Forehand's Queens . . . Get a good Queen

One that will keep the hive chock full of bees at all times, make the biggest yields of honey, sting less, and look the prettiest, at a medium price.

Over 25 years of select breeding has brought our queens up to a standard surpassed by none, and the superior of many. We have tried the principal races and every method known, and now we have selected the best race and method—the THREE-BAND BEES and the DOOLITTLE METHOD. We USE THE 3-BANDS—WHY? Because they get results.

Dr. Miller, Roots, and Dadants use them.

Our queens are sold by many of the largest dealers in the U. S.

Louis H. Scholl (one of the largest beekeepers of the Southwest) says, "Three-band Italians have proven the best all-round-purpose bee after trying out nearly every race—not only in an experimental way while still at A. M. Col., but in our own apiaries as well." (In Beekeeper's Item.)

Untested	One,	\$.75	Six,	\$ 4.25	Twelve,	\$ 8.00
Selected untested	One,	1.00	Six,	4.75	Twelve,	9.00
Tested	One,	1.50	Six,	8.75	Twelve,	17.00
Selected tested	One,	2.00	Six,	11.00	Twelve,	20.00

Write for circular giving general description. Mail all orders to

W. J. FOREHAND & SONS, Fort Deposit, Alabama

Queens from Dr. C. C. Miller's Best Breeders

We have made arrangements with Dr. C. C. Miller to keep us supplied with some of his best breeders, and are rearing queens from these superior mothers that we guarantee to be as good as can be reared. These queens are not just individuals that have made a good yield; we all have some colonies that made a good showing, but all do not have a strain that holds the world's record as his does. Think of it—a whole yard of 72 colonies averaging 266 sections weighing 244 pounds. You are getting at a low price the results of fifty years of careful breeding of one of the most successful beekeepers in the world. Safe arrival and entire satisfaction guaranteed on all goods sold.

One untested Miller queen, \$1.00, \$11.00 per dozen. Tested, 2.00. Ex. Select Tested, \$3.50. Breeders, \$5.00 to \$10.00 each.

One pound bees, \$1.25; ten or more, \$1.00 per pound. Two pounds, \$2.25; ten or more, \$2.00 each. One frame nuclei, \$1.25; two frame, \$2.25; three frame, \$3.25. Add price of queen wanted. Full colonies a specialty.

The Stover Apiaries
Starkville, Miss.

Rhode Island Northern-bred Italian

Queens, \$1.00. Circular.

O. E. TULIP, ARLINGTON, RHODE ISLAND

QUEENS

Select Italians; bees by the pound; nuclei. 1917 prices on request. Write

J. B. HOLLOWETER . . . Rockton, Pennsylvania

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, \$1.00 each; \$9.00 for 12.

Sel. Tested, \$1.50 each.

Virgins, 50c each; or three for \$1.00.

Bees by pound.

Plans "How to Introduce Queens," and "Increase," 25c. List free.

E. E. MOTT, Glenwood, Mich.

GRAY CAUCASIANS



Early breeders; great honey-gatherers; cap beautifully white, great comb builders; very prolific; gentle; hardy; good winterers. Untested, \$1.00. Select untested, \$1.25. Tested, \$1.50. Select tested, \$2.00. The best all-purpose bee. Bees by the frame and pound.

H. W. FULMER, Box G, Point Pleasant, Pa.

Queens . . Queens

From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

Charles Stewart, Box 42, Johnstown, N. Y.

Quality . . . Service System

We quote the following prices
for April and May:

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested..\$3.00	Select Breeder..\$5.00		
	Extra Breeder..\$10.00		
	1	6	12
1-lb. Bees	\$1.50	\$ 8.00	\$15.00
2-lb. Bees	2.50	14.00	27.00
3-lb. Bees	3.25	18.50	35.00
	1	6	12
1-Frame Nuclei.	\$2.00	\$10.50	\$18.00
2-Frame Nuclei.	2.50	12.00	22.00
3-Frame Nuclei.	3.50	20.00	37.00
5-Frame Nuclei.	5.00	22.00	40.00

No queen furnished at the above prices on packages and nuclei. Select kind of queen and add her price, no charge made for clipping.

We guarantee safe arrival on bees and queens in the United States and Canada. We are in a position to furnish price on both bees and queens in large lots. OUR stock is the finest that can be had. We guarantee every queen to be purely mated, or we will replace same by return mail, all orders filled promptly. Our mail and express service is the best, having 24 out-going trains daily.

J. E. Marchant Bee & Honey Co.
Columbus, Ga., U. S. A.

The quick center for deliveries.
A trial will convince you.

The Proof of the Pudding is in the Eating

The quality of Murry's queens and bees is shown in the increasing demand for them. Capacity of queen yards doubled last year and again this season. Advance orders up to March 5th nearly as many as total sales last year. Many old customers are doubling their orders for this season. Why? Because they get a square deal.

Three-banded Italians and Golden Italians. Orders filled by return mail. Safe arrival and satisfaction guaranteed. No disease. Health certificate with each shipment of bees or queens.

Prices	May 1st to Nov. 15th			
Queens	1	6	12	100
Untested ...	\$.75	\$4.00	\$ 7.50	\$60.00
Tested	1.00	5.50	10.00	
Select tested	1.50	8.00	15.00	
Breeders	5.00 to 10.00 each, any time.			

For nuclei and pound packages, see March issue of this journal, or write for circular.

H. D. Murry, Mathis, Texas

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . 25 Years a Queen-breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies..	6.00	30.00		5.00	25.00	
10-frame colonies .	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees ...	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dunn's reference book.

H. G. Quirin, Bellevue, Ohio

Eastern Beekeepers

This is the time you will need hives, sections, and foundation. Let us mail you our catalog giving prices on everything a beekeeper needs. We furnish full and nucleus colonies, bees by the pound, and queens.

A 3-fr. nucleus colony and Italian queen in a shipping-box, \$5.10; tested Italian queens, \$1.50; untested, \$1.10.

Our location enables us to get goods to you promptly.

I. J. Stringham, 105 Park Pl., N. Y.
Home Apiary: Glen Cove, L. I.

Italian Queens and Bees

I am better able to supply the trade with my three-band Italian queens, colonies, and nuclei than ever before. Send for circular and prices.

E. A. Leffingwell, . . . Allen, Mich.



Blanke's BEE BOOK

This book describes our line of bee supplies. It contains much information valuable to the beekeeper.

We are centrally located. Shipments out of St. Louis will reach you promptly, and our long experience in this line enables us to fill your orders accurately.
Write for Blanke's Bee Book—it's FREE.

BLANKE MFG. & SUPPLY CO.

214-216-218 Washington Avenue, St. Louis, Missouri

PORTER BEE-ESCAPE

Saves Honey, Time, Money



For Sale by All Dealers

THE A. I. ROOT CO., Medina, Ohio
General Agents for the United States

R. & E. C. PORTER, Manufacturers
Lewistown, Ills., U. S. A.



Established 1885

It will pay you to get our 50-page catalog and order early.

Beekeepers' Supplies

The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

AT BOSTON

New England beekeepers will find everything in the way of supplies they will need the coming season. Place your orders early and avoid the rush. Send for catalog.

H. H. JEPSON, 182 Friend St.

Rhode Island BEEKEEPERS

Beekeepers' Supplies
Everything for the Beekeeper

J. A. Sampson, 10 Summer St., Providence, R. I.
(Side of Technical High School)

A SPECIAL INTRODUCTORY OFFER.

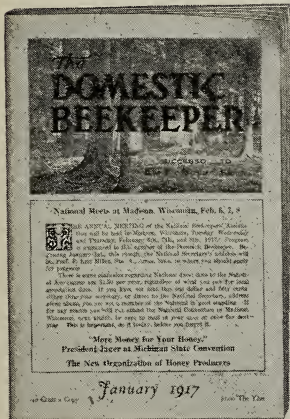
THE DOMESTIC BEEKEEPER

For Six Months for Only 25 Cents

The Domestic Beekeeper (successor to the Beekeepers' Review) is now a 48-page magazine with cover, much larger and better every way than the old Review.

We want you to see for yourself what a large and interesting journal the Domestic Beekeeper is and are offering you this special price for a trial subscription for six months. Just wrap 25c in one or two cent stamps in a paper and mail it to

The Domestic Beekeeper . Northstar, Mich.



"Griggs Saves You Freight"

TOLEDO

is the place to order your 1917 supplies from, and GRIGGS is waiting for your order.

We are well supplied with a fine stock of Root's Goods for the following season; and if a saving of time and money means anything to you, Mr. Beeman, wherever you are, don't overlook getting our catalog and prices.

Promptness and satisfaction is our motto, whether you have one hive or 500.

HONEY and Beeswax always wanted. Special price list on bees and queens, also Poultry Feeds, mailed with Catalogs.

S. J. GRIGGS & CO.

Dept. 25

Toledo, Ohio

"Griggs Saves You Freight"

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk.

Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.

J. B. MASON, Manager

BY RETURN MAIL

Choice Tested Queens, \$1.00 each, reared last fall and wintered in four-frame nuclei. Queens that give satisfaction, bees that get the honey, our strain of three-band Italians. No disease in this locality. Satisfaction guaranteed on all queens. Untested queens in April and May, single queen, \$1.00; \$9.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

Reasonable Prices Good Service

Place your order now—don't wait. Root's "Quality" goods. I guarantee satisfaction. . . .

A. M. Moore

Zanesville, Ohio

PENNSYLVANIA BEEKEEPERS

Our catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Full Values in

"falcon" Beekeepers' Supplies

For the last forty odd years during our manufacture of "FALCON" supplies it has been our endeavor to place upon the market the very best possible line of supplies, and we pride ourselves in having accomplished this. "FALCON" supplies have not only been recognized as the best in this country, but also a leader in other countries. Nothing expresses the superiority of the "FALCON" ware better than the many kind and pleasing words we receive from our satisfied customers, and the ever-increasing demand for "FALCON" supplies.

The season is drawing nearer and beekeepers should endeavor to order early. By making up your wants now you will be better fitted to go into the season with a view of not only obtaining a bigger crop but to facilitate matters thruout the season. If you will make up a list of requirements for quotation we shall be glad to quote.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.



DOOLITTLE & CLARK

will have some
choice breeding
queens ready
for shipment
May 1. Prices:
\$2.50, \$5.00, \$10.
Untested, \$1.00
each; 6, \$5.00;
12, \$9.00.

Marietta, Onondaga Co., N. Y.



If You Need Queens for Good
Results We Have Them.

As Foul-brood Resisters none
are better. . TRY THEM.

GOLDEN QUEENS.

1 Untested, \$1.00; six, \$5.00; twelve, \$ 9.00
1 Tested, 1.50; six, 8.00; twelve, 15.00

THREE-BAND QUEENS.

1 Untested \$.75; six, \$4.00
1 Tested 1.00; six, 5.00

NUCLEI, THREE-BAND ONLY.

1 Frame with Untested Queen, \$2.50; six, \$15.00
2 Frame with Untested Queen, 3.50; six, 18.00
3 Frame with Untested Queen, 4.00; six, 20.00

If Tested Queens are wanted add 50c extra to
nuclei. Satisfaction guaranteed.

W. J. Littlefield, P. O. Box 582, Little Rock, Ark.



3-banded Italians...

From May 1 until June 1

Untested, . . . \$1.00; six, \$4.50; twelve, \$8.00
Tested, . . . 1.25; " 5.50; " 10.50

From June 1 until November 1

Untested, . . . \$.75; six, \$4.00; twelve, \$7.50
Tested, . . . 1.00; " 5.00; " 9.00
Select tested, \$2.00 each. See ad. in April 1 "Gleanings."

Circular free.

John G. Miller, 723 C St., Corpus Christi, Tex.

Queens of Quality

Select, three-banded, leather-color Ital-
ians—bred for honey production. . .

Untested queens, 75c each; 6, \$4.25; 12,
\$8.00. . . Descriptive circular free.

J. I. Banks, Dowlletown, Tennessee

Beginner's Book of 28 Pages, Free

Also our 44-page Bee-supply Catalog for 1917
is ready for mailing. Ask for your copy now.

OUR PRICES ON BEES AND QUEENS: 1 lb. of
bees with queen, \$2.25; 10 lbs., \$20.50; 100 lbs.,
\$190.00; 1 frame with queen, \$2.00; full colonies,
one-story hive included, \$8.75; untested queens, 75c
each. Our complete price list free, and safe
delivery guaranteed.

The Deroy Taylor Company, Newark, N. Y.

SOUTHERN BEEKEEPERS

Get the Famous Root Goods Here

Veils, 65c; Smoker, 90c; Gloves, 65c pair; wire-im-
bedder, 35c; honey-knife, 80c; 1-lb. spool wire, 35c;
medium-brood foundation, 1 to 11 lbs., 58c per lb.;
11 to 25 lbs., 56c; 50 or 100 lb. lots, 53c. Ten-
fr. wood-zinc excluders, 50c each; Hoffman frames,
\$3.75 per 100. Honey-extractors for sale. I am
paying 28c cash, 29c trade, for wax.

J. F. Archdekin, Bordlonville, Louisiana.

Increase Your Honey Crop

by introducing some of Leininger's strain of Italian
Queens which have a record of 30 years as to honey-
gathering qualities and gentleness are unexcelled.
Disease has never appeared in our apiaries. Queens
will be ready June the first. Untested, each, \$1; 6,
\$5. Tested, each \$1.25; 6, \$5.50. Breeders, \$5.

FRED LEININGER & SON, Delphos, Ohio



IRON AGE

Farm, Garden and Orchard Tools

Answer the farmer's big questions:
How can I grow more crops with
least expense? How can I cultivate
more acres and have cleaner fields?

IRON AGE Riding Cultivator

will help you do this. Has pivot wheels and gangs
with parallel motion. Adjustable to any width
of row. Every tooth can be raised, lowered or turned
to right or left. Lever
adjusts balance of frame
to weight of driver.
Light, strong and com-
pact—the latest and best
of riding cultivators. We
make a complete line of
potato machinery, garden
tools, etc. Write us to-
day for free booklet.

No. 78

Bateman Mfg Co., Box 20D, Grenloch, N.J.

?



"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle
power pure white light. Just what the farmer,
dairyman, stockman, etc. needs. Safe—Reliable
—Economical—Absolutely Rain, Storm and Bug
proof. Burns either gasoline or kerosene. Light
in weight. Agents wanted. Big Profits. Write
for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

ORNAMENTAL FENCE

Attractive, Strong, Durable,
all steel, for Lawns, Churches
or Cemeteries. Costs less than
wood. **DIRECT TO YOU at
Manufacturers Prices.** Cat-
alogue Free. Write today.

KITSELMAN BROTHERS, Box 403 MUNCIE, INDIANA.

LE PAGE'S

CHINA CEMENT

STANDS HOT AND COLD WATER 10°

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Amber honey in new 60-lb. cans.
Van Wyngarden Bros., Hebron, Indiana.

FOR SALE.—To the highest bidder, a limited quantity of Michigan's best white extracted honey, in 60-pound tins.

A. G. Woodman Co., Grand Rapids, Mich.

HONEY AND WAX WANTED

WANTED.—Extracted honey at jobbing prices. National Honey-Producers' Assn., Kansas City, Mo.

WANTED.—Comb and extracted honey at jobbing prices. Nat. Honey-Prod. Assn., Kansas City, Mo.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED TO BUY a quantity of dark and amber honey for baking purposes.

A. G. Woodman Co., Grand Rapids, Mich.

HONEY WANTED. — Extracted, white, light amber, and amber of good quality. Can use several cars. Send samples and prices.

Wesley Foster, Boulder, Colo.

WANTED.—White-clover and light-amber extracted honey. Will buy in lots of 1000 lbs. to a carload. Send sample and lowest price.

M. E. Eggers, Eau Claire, Wis.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS. — Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Ct.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Good used 60-lb. cans, 2 in a case. D. H. Welch, Racine, Wis.

FOR SALE.—Water-power feed and buckwheat mill; house, barn, and 25 colonies bees; also 112-acre farm. Will sell either one.

A. J. Gorton, Gregory, Mich.

Northwestern beekeepers can now get Root's supplies at catalog prices near home and save time and freight; also Italian bees and queens. Geo. F. Webster, Valley View Farm Apiary, Sioux Falls, S. Dak.

THE PERFECT Bee-Frame Lifter. For descriptive circular address,
Ferd C. Ross, Box 194, Onawa, Iowa.

Root's supplies at Root's prices. Special offer on 3-frame nuclei for the season.
L. D. Martine, 206 E. Jefferson, Louisville, Ky.

FOR SALE.—260 L. frames, drawn combs, wired; hives, extractor, etc.; no disease.
P. H. Dunn, Akron, Iowa.

We carry a complete line of bee-supplies. Ask for our bee-supply catalog. Let us quote you on your requirements. Derooy Taylor Co., Newark, N.Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
White Mfg. Co., Paris, Tex.

HONEY LABELS that will tempt the buyer to purchase your honey. Neat, attractive labels at right prices. Samples Free.
Liberty Pub. Co., Sta. D, Box 4-E, Cleveland, Ohio.

FOR SALE.—Hundred either eight or ten frame bodies of L. combs for extracting, and 6-frame extractor; 100 lbs. 4 x 5 foundation.
Parma Bee and Honey Co., Parma, Idaho.

FOR SALE.—50 lbs. medium brood foundation for Hoffman frames, at 45 cts. per lb.; 100 used 60-lb. cans at 5 cts. per can.
J. Holzhauser, 879 Sheridan, Detroit, Mich.

FOR SALE.—Boardman solar extractor, Hatch wax-press, Woodman foundation-fastener, gas-oven for liquefying honey; capacity six 60-lb. cans.
E. S. Miller, Valparaiso, Ind.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont. (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Bargain prices in B grade sections, $4\frac{1}{4} \times 1$ 15/16, and $4\frac{1}{4} \times 2$ inch. A sections in $4\frac{1}{4} \times 1\frac{1}{2}$, style 2. Also extracting-supers, eight and ten frame size, as well as Danz. shallow frames.
F. C. Scranton, 915 Walnut St., Des Moines, Ia.

FOR SALE.—45 Danzenbaker extracting supers used two seasons, combs wired, at special low price. A few Danz. extracting supers, nailed, with frames but not foundation. A few used Danz. hives.
A. I. Root Co., Des Moines, Iowa.

FOR SALE.—200 T supers for $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ sections, unpainted, 15c each, in lots of 25 or more. 150 dovetailed supers $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ sections, painted, 25c each, 8 and 10 frame size. 15 Danz. hives, one complete super each hive, painted, \$1.25 each. 50 drone-traps, alley, 20c each. 50 Miller feeders, 20c each. Lots of other stuff cheap. Write your requirements. Money refunded if goods are sold before arrival of order.

A. W. Smith, Birmingham, Mich.

WANTS AND EXCHANGES

WANTED.—25 colonies of bees, more or less. 64989 George, 53 Forest St., Montclair, N. J.

WANTED.—15 B or 25 B second-hand extractor in good condition. A. N. Henne, Jones, Mich.

WANTED.—15 to 100 colonies of bees; 10-fr. hives; wired frames. Price reasonable. P. O. Box 596 "U" Farm, St. Paul, Minn. 72186

Bees wanted within fifty miles St. Albans or Montreal. Myself pack and move them.

F. Allen, Philipsburg, Que., Canada.

Wax and old combs wanted for cash or to make up on shares, beekeeper to factory direct.
J. J. Angus, Grand Haven, Mich.

WANTED.—To buy in the southern states or California a small bee and fruit farm. Offers with all details and photos. A. I. Root, Co., Medina, Ohio.
F—3307

75 pairs extra fine Carnean pigeons—both red and yellow, \$3 and \$4 per mated pair. Will exchange some for straight Italian bees.

Isabella E. Jewell, Park Ave. E., Vineland, N. J.

FOR SALE OR EXCHANGE.—Everbearing strawberry, raspberry, and blackberry plants, for bees by pound, or seeds.

John D. Antrim, Rt. 1, Burlington, N. J.

WANTED.—Shipments of old comb and cappings, for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1917 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

WANTED.—Queens, 100 to 500 Italians, untested, in lots of 25 to 50; also some cheap bee-feed—possibly 1000 lbs., and to rent, with option of buying, a foundation mill, 8 or 10 inch brood. Above articles may be good for the purpose intended and cheap. John H. Koontz, Stewardson, Ill.

GOATS

MILCH GOATS.—"Profit and Pleasure in Goat-Keeping," pronounced by experts the best goat book, regardless of price; profusely illustrated; by mail, 35 cents. Fred C. Lounsbury, Plainfield, N. J.

PATENTS

PATENTS SECURED or All Fees Returned. Patents Sold Free! Our "Patent Sales Department" bulletin, and books, Free! Send data for actual free search

E. E. Vrooman & Co., 834 F, Washington, D. C.

ATTENTION—PATENTS. You will like my easy plan. Write for free booklet.

C. L. Drew, 3 Victor Bldg., Washington, D. C.

POULTRY

S. C. Brown Leghorns; stock, eggs, baby chicks. Circular. H. M. Moyer, Boyertown, Pa.

FOR SALE.—Rose Comb Brown Leghorn eggs for setting from good winter and summer layers, and blue-ribbon stock; also penciled Indian Runner duck eggs. Eggs, \$1.25 per 15; \$3.50 per 50; \$6.00 per 100. Joseph A. Reinecke, Rt. 5, Seneca, Kansas.

Beekeepers should be keepers of chickens also. Try winter-laying, prize-winning, 200-egg strain of White Wyandottes. Eggs, chix, and breeding stock for sale. Tell me how many you want, and when, then I will quote prices to please you.

Dr. Elton Blanchard, Youngstown, Ohio.

REAL ESTATE

FOR SALE.—32-acre farm, stock and tools; 25 acres crops, nice house, $\frac{1}{4}$ mile from city limits.

C. H. Tidd, Dade City, Fla.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. Seagraves, Industrial Commissioner A. T. & S. F. Ry, 1934 Ry Exchange, Chicago.

VIRGINIA, N. C., W. Va., and Ohio Farms at \$15.00 per acre and up offer big value for the price. Best climate, markets, schools, and transportation. Good land and neighbors. Write F. H. LaBaume, Agr'l Agt. N. & W. Ry., 246 Arcade, Roanoke, Va.

FOR SALE.—10-acre home; 4 acres in blue-grass pasture; 4 acres in alfalfa; 2 acres in garden and orchard; 12 varieties of fruit; watered by 3 springs and creek; 4-roomed house and out-buildings; $\frac{1}{2}$ mile to school; 1 mile to railroad station; electric lights and telephone; \$2800; terms easy; 100 colonies bees also for sale.

Jes. Dalton, Route 1, Cove, Oregon.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 DeWolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies.

J. H. M. Cook, 84 Cortlandt St., New York.

When it's **GOLDENS** it's **PHELPS**. Try one and be convinced.

FOR SALE.—Italian queens. See large advertisement elsewhere. H. B. Murry, Liberty, N. C.

Full colonies fine Italian bees at bargain prices. Write J. York Triggs, 811 Elm St., Dallas, Texas.

Phelps' queens will please you. Try them and you will be convinced.

Italian bees and queens. Send for circular.

Ira C. Smith, Dundee, Oregon.

FOR SALE.—Full colonies fine Italian bees, low price. L. H. Robey, Worthington, W. Va.

FOR SALE.—Golden Italian queens. In June, untested, 60 cts. J. F. Michael, Winchester, Ind.

FOR SALE.—10 colonies of bees in 10-frame hives.

Emil Tappert, 2442 N. Avers Ave., Chicago, Ill.

Italian bees, 2 lbs. with young queen, \$3.00. Satisfaction guaranteed.

Joe C. Weaver, Cochrane, Ala.

Queens for July and later delivery. No more rush orders till July 1st.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE.—E. E. Mott's strain of Italian queens 90c each, \$9.00 per doz. Send for list.

Earl W. Mott, Glenwood, Mich.

Try **ALEXANDER'S** Italian queens for results. Untested, each, 75 cts.; 6 for \$4.25; \$8 per dozen. Bees by the pound. C. F. Alexander, Campbell, Cal.

"She-suits-me," bright Italian queens, \$1 after May 15. Orders booked now.

Allen Latham, Norwichtown, Conn.

Italian Bees and Queens, Root's goods, and Cary hives. Catalog mailed on request.

F. Coombs & Sons, Brattleboro, Vt.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

Select golden and three-banded Italian queens, bred for honey-gatherers; gentle and prolific; 70 cts. each; 6, \$3.75; 12, \$7.25. Virgins, 30 cts.

G. H. Merrill, Pickens, S. C.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00. Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—Bright Italian queens at 75 cts. each; \$7.50 per doz. Ready April 15. Safe arrival and satisfaction guaranteed.

T. J. Talley, Rt. 3, Greenville, Ala.

Italian bees in 1 and 2 lb. packages; will sell on account of long drouth. Write for prices. J. Wilson Jones, Box 274, Falfurrias, Brooks Co., Tex.

Vigorous, prolific Italian queens, \$1; 6, \$5. June 1. My circular gives best methods of introducing. A. V. Small, 2302 Agency Road, St. Joseph, Mo.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$6; 10-fr., \$7 with queen.

Henry Shaffer, 2860 Harrison Ave., Cincinnati, O.

My 3-banded Italian queens will be ready to ship April 1. Write for prices of bees and queens by the pound. Safe arrival and satisfaction guaranteed. J. A. Jones, Greenville, Ala.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. Wm. S. Barnett, Barnetts, Va.

Leather-colored 3-band Italian bees, \$1.25 per pound. Tested queens, \$1.00; untested, 75 cts. each; 2-frame nuclei, \$2.00. Delivery after April 15. C. H. Cobb, Belleville, Ark.

QUEENS ON APPROVAL.—A select tested queen sent on approval. Send address for description, etc. Bees and supplies for sale.

A. M. Applegate, Reynoldsville, Pa.

BUSINESS-FIRST QUEENS. — Three - banded Italians—untested, \$1.00 each; 6 for \$5.00. Send for price list and \$10 free offer. No disease. M. F. Perry, Bradentown, Fla.

Queens, Queens, Queens. We are better prepared than ever to supply you. Untested, 75c each; tested, \$1.25 each; select tested, \$2.00 each. See our big illustrated ad on first leaf of this journal. W. D. Achord, Fitzpatrick, Ala.

FOR SALE.—Italian bees and queens. One-pound, two-pound, and three-pound packages, with queens; also on frames and full colonies. Ask for our price list, free beginner's book, and bee-supply catalog. Deroy Taylor Co., Newark, N. Y.

My bright Italian queens will be ready to ship April 1 at 75 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound; safe arrival and satisfaction guaranteed. W. W. Talley, Rt. 4, Greenville, Ala.

Two-frame nuclei 3-band Italian bees, \$2.25; 1 lb. bees with queen, \$1.65. Hoffman brood-frames, wired, and foundation, at catalog prices less carriage, if ordered for parcel post. J. B. Marshall & Son, Rosedale Apiaries, Big Bend, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each: virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—29 stands Italian bees—strong healthy colonies; eight and ten frame dovetailed hives; also extra hives, supers, feeders, and a complete list of implements. These go at a bargain. J. F. Drebert, Boomer, W. Va.

TO INQUIRERS.—I sell no queens directly, but have an arrangement with The Stover Apiaries, Starkville, Miss., which I keep supplied with best breeders, and they can supply you with my stock. C. C. Miller, Marengo, Ill.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. Clemons, Rt. 3, Williamstown, Ky.

FOR SALE.—Mott's northern-bred Italian queens are hardy, prolific, gentle, and hustlers, therefore resist disease well. Bees by pound. Plans, "How to Introduce Queens and Increase," 25 cts. List free. E. E. Mott, Glenwood, Mich.

Head your colonies with some of our vigorous young three-band Italian queens. Untested, June 1, \$1.00; \$9.00 per doz.; nuclei and full colonies. Satisfaction guaranteed.

A. E. Crandall & Son, Berlin, Conn.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers; untested queens 75 cts. each; \$8.00 per dozen: \$60.00 per 100; tested, \$1.50 each. Prompt service and satisfaction guaranteed.

L. J. Dunn, 59 Broadway Ave., San Jose, Cal.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; doz., \$9.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Son, Wilcox St., Binghamton, N. Y.

GOLDENS THAT ARE TRUE TO NAME.—Write for testimonials. One race only. Unt., each, 75c; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00. Breeders, \$5.00 and \$10.00.

Garden City Apiaries, San Jose, Cal.

My choice northern-bred Italian queens are hardy, vigorous, and prolific. May and June, untested, \$1.50; select unt., \$2.00; tested, \$3.00; after July 1, unt., \$1.00; select unt., \$1.25; tested, \$2.00; select tested, \$2.50. Free circular.

F. L. Barber, Lowville, N. Y.

North Carolina bred Italian queens of Dr. C. C. Miller's famous strain of three-banded Italian bees; June 1, untested, 1, 90c; 12, \$9.00; tested, 1, \$1.25; 12, \$12.00; selected tested, 1, \$1.75; 12, \$15.00. Safe arrival and satisfaction guaranteed.

L. Parker, Rt. 2, Benson, N. C.

Golden Italian queens of the quality you need, bred strictly to produce Golden bees that are real workers. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.25; 50 or more, 60 cts. each. Prompt delivery and satisfaction guaranteed.

L. J. Pfeiffer, Rt. A, Box 219, Los Gatos, Cal.

Golden Italian queens from a breeder that was a first-premium winner at Illinois State Fair in 1916; untested, 75 cts.; six for \$4.25; doz., \$8.00; select untested, \$1.00; 6 for \$5.00; 12 for \$9.00; tested, \$1.50; 6 for \$8.00.

A. O. Heinzel, Rt. 3, Lincoln, Ill.

QUEENS OF SUPERIOR QUALITY.—I have a strain of three-banded bees, selected from some of the best breeders in the United States—bees that will fill your heart with joy, and your hives with honey. I am booking orders for June delivery. Write for price list. H. N. Major, South Wales, N. Y.

FINE ITALIAN QUEENS.—Can furnish select stock at following prices: Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00; 6 or more at dozen rates. No disease. Safe arrival. Can begin to furnish about May 15. Give me a trial order. Chas. M. Darrow, Star Route, Milo, Mo.

ITALIAN QUEENS, northern-bred, three-banded, highest grade; select untested, guaranteed; queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, one, \$1.00; 12, \$9.00; 50, \$30.00. Send for circular. J. H. Haughey, Berrien Springs, Michigan.

ENERGETIC HONEY-GATHERERS. — Best three-band stock. Untested queen, 75 cts. Bees per lb., \$1.25. In quantity, price quoted on application. Prompt shipments. Safe arrival and satisfaction guaranteed. Shipments ready May 15. No disease in this community. Gila Valley Apiaries, M. G. Ward, Mgr., Duncan, Arizona.

FOR SALE.—18 swarms of bees in Root Buckeye and Standard hives, with supers and all supplies, including Novice extractor. Photo and list on application. Fay McFadden, Granville, N. Y.

Golden and three-banded, also Carniolan queens. Tested, each, \$1.00; 6 or more, 85 cts. each. Untested, each, 75 cts.; 6 or more, 65 cts. each. No bees for sale. I. N. Bankston, Eagle Ford, Tex.

I am now booking orders for my 3-banded Italian queens for delivery after May 20: one untested, 75c; 6, \$4.25; 12, \$8.00; tested queens, \$1.50.

Robt. B. Spicer, Wharton, N. J.

BREEDING QUEENS.—We shall have a nice lot of Italian queens for sale this spring. They have wintered fine. Prices, \$2.50, \$5, and \$10. Untested queens about June 15.

Doolittle & Clark, Marietta, N. Y.

Golden Italian queens about May 1, that produce golden bees; good honey-gatherers. No foul brood. Select tested, \$1.25; tested, \$1.00; untested, 75 cts.; 6, \$4.25; 12, \$8.00. No nuclei or bees for sale.

D. T. Gaster, Rt. 2, Randleman, N. C.

Golden Italian queens from June to November. untested, 75 cts.; 6, \$4.25; doz., \$8.00; tested, \$1.25; 6, \$7.00; select tested, \$1.50; breeders, \$5.00. Bees by pound or nucleus. Pure mating guaranteed. Send for circular. J. I. Danielson, Fairfield, Ia.

FOR SALE.—1000 lbs. bees in 2-lb. packages: 1 to 49, 2 lbs. bees in package, \$2.25 each; 50 to 500, 2 lbs. bees in package, \$2.12½ each. Untested Italian queens, 75 cts. extra. Safe arrival guaranteed. H. E. Graham, Gause, Texas.

FOR SALE.—75 to 100 colonies of bees in eight-frame Standard hives, either Hoffman or plain frame. Frames all wired and full sheets of foundation used. Price \$5.50 per colony, if all are taken: \$6.00 for less number. Hives are new, or nearly so, and well-painted. Bees wintered successfully. S. Conthard, Thompsonville, Mich.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

Good Italian queens. Tested, \$1.00; untested, 75 cts. Bees in 1-lb. packages, with untested queen, \$2.25; 2-lb. package, \$3.25; 1-lb. package, with tested queen, \$2.50; 2-lb. package, with tested queen, \$3.50. Nuclei, 2 frames, with untested queen, \$3.25; 3 frames, \$4.00. Nuclei with tested queen, 2 frames, \$3.50; 3 frames, \$4.25. We can please you.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

Three-banded queens only; ready after May 1. Dr. C. C. Miller queens, \$1.00 each; 12 for \$10.00; breeders, \$10.00 each; my own strain, \$1.00 each; 12 for \$9.00; breeders, \$5.00 to \$10.00 each; nuclei and full colonies ready June 1; 2-fr., \$2.50; 8-fr., with queen, \$8.00; 10-fr., with queen, \$10.00; 1-lb. package of bees, no queen, \$1.50; 2-lb., no queen, \$2.75; 3-lb., no queen, \$3.75. Pounds of bees and queens ready April 1.

Curd Walker, Queen-breeder, Jellico, Tenn.

FOR SALE.—Three-band Italian bees and queens. We quote without queen, as follows:—Three-frame nuclei, \$2.25; two-frame nuclei, \$1.75; one-frame nuclei, \$1.25; three pounds bees, \$3.25; two pounds bees, \$2.25; one pound bees, \$1.50. If queen is wanted with bees add price of queen wanted. Young untested queens, \$.75; young tested queens, \$1.00. Our bees and queens last year gave general satisfaction, and this year we are in position to give stronger nuclei with a greater per cent brood than we did last year. If it is a bargain you are looking for, send your order this way. We are now shipping bees and queens daily. Bees are all in standard hives, Hoffman frames, wired, and full sheets foundation. We guarantee bees to be free from disease.

The Hyde Bee Co., Floresville, Texas.

BEES FOR SALE.—On account of the poor health of one of my sons, we shall have more bees the coming season than we can handle. The bees are all pure Italian, with good young queens—descendants of the famous Moore strain. They are in nearly new Langstroth hives, on good wired combs, built on foundation; are free from disease. I will sell about 100 colonies, price in 10-frame hives, \$7.00 a colony; in 8-frame hives, \$6.00. Orders may be sent at any time; the bees will be shipped about June 1. Elmer Hutchinson, Lake City, Mich.

Golden 3-band Italian and Carniolan queens: Virgin: 1, 50c; 6, \$2.50; 12, \$4.00; 100, \$25.00. Untested: 1, 75c; 6, \$4.20; 12, \$7.80; 100, \$60.00. Select untested: 1, 85c; 6, \$4.80; 12, \$9.00; 100, \$70.00. Tested: 1, \$1.00; 6, \$5.40; 12, \$10.20; 100, \$80.00. Select tested: 1, \$1.25; 12, \$13.80; 100, \$100. Breeders: \$3.00 each. Bees in combless packages: ½ lb., 75c; 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei: 1-frame, \$1.25; 2 frames, \$2.25; 3 frames, \$3.00. Add price of queens wanted. We guarantee safe arrival and no disease.

C. B. Bankston, Buffalo, Tex.

MISCELLANEOUS

Quality Dahlias (northern grown). Send for catalog. Mrs. E. L. G. Davis, Rt. 2, Newton, N. H.

BASSWOOD TREES.—All sizes; send for list. W. M. Hansen, Jr., Niles, Mich.

HELP WANTED

WANTED.—Man to work with bees 6 months or more. State age, experience, and wages. W. J. Stahmann, Clint, El Paso Co., Texas.

WANTED.—Help in beeyards. State age, experience, and wages wanted, in first letter. Mathilde Candler, Cassville, Wis.

WANTED.—Man to work with bees, season 1917. State age, experience, and wages. The Rocky Mountain Bee Co., Billings, Montana.

WANTED.—Co-operative apprentice in production of extracted honey—up-to-date outfit; also some work on a small farm, new land. O. H. Townsend, Lake City, Mich.

WANTED.—Active man with some experience to help in bee and queen yards. Board furnished. State wages wanted. W. A. Latshaw Co., Clarion, Mich.

WANTED.—Industrious young man, fast worker, as a student helper in our large bee business for 1917 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter. W. A. Latshaw Co., Clarion, Mich.

WANTED.—Young man with a little experience, fast willing worker, as student helper with our 1000 colonies. Crop for past two years, 6 carloads. Will give results of our long experience and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer. E. F. Atwater, Meridian, Idaho.

SITUATION WANTED

Position wanted by young man of 18 with some practical beekeeping in Wisconsin or nearby states. Has no bad habits; a fast and willing worker about bees; has had some practical experience with bees in the production of comb and extracted honey, also in the rearing of queens. State what wages you will pay and what knowledge may be gained.

J. O. Eggers, Eau Claire, Wis.

CONVENTION NOTICES

LEGAL NOTICE.

The Texas Honey-producers' Association, with main office at San Antonio, Texas, hereby gives notice of the organization as a limited partnership. It is organized with the intention of incorporation under the laws of the State of Texas, for the business of purchase and sale of honey, beekeepers' supplies, cans, and appliances used in the production and sale of apianian products. The liability of any member may be learned upon application to E. G. LeSturgeon, Secretary, P. O. Box 1048, San Antonio, Texas.

A field meeting of the beekeepers of southeastern Iowa is being planned, to be held at Fairfield, Ia., May 9. C. P. Dadant, editor of the *American Bee Journal*, has promised to be present, and several other noted beekeepers have been asked to be on the program. A question-box will be one of the prominent features of the meeting. All beekeepers from far and near are invited. Fairfield is on two of the main railroads of Iowa—the C. B. and Q., and the Rock Island. The forenoon trains on the 9th will be met. The meeting-place will be the Samuel Lewis meat market. Meeting will be held in a hall near by. Samuel Lewis, L. W. Elinore, J. I. Danielson, of Fairfield, and J. W. Stine, Stockport, Committee.

The sixth annual field day of the Toronto Beekeepers' Association will be held this year at the Ontario Agricultural College, Guelph, May 24—Empire Day.

The object of these field days is to educate the beekeeper by practical demonstration in the apiary to better and improved methods of beekeeping; bring home to each and all the importance of exchanging ideas, and seeing at first hand the methods of operation of successful apiarists. The field-day demonstration for this purpose is ideal; and wide-awake beekeepers are alive to this fact, as is shown by the increased attendance from year to year. Under the splendid management of the provincial apiarist the Ontario Agricultural College is taking the lead in things apicultural; and the Toronto beekeepers, by selecting the very center of beekeeping as their place of meeting, are making a strong appeal to all beekeepers—our American allies especially—not only to be present on this our Empire Day celebration, but to swell the ranks by inviting their friends to spend "the day" with them. Every beekeeper within reach, it is hoped, will feel a personal responsibility in helping to make this national field day the greatest and best ever. It goes without saying, that the program will be first class. Mr. Pettit, with wide experience in such matters, is in charge of this department, and we are confident all who are fortunate enough to be present will go away delighted. The Wellington County Association will provide tea and coffee, while the visitors will bring their lunch-baskets.

Now, beekeepers, this is your opportunity—a great occasion, a great place, a great program. Let it be a great and enthusiastic meeting.

G. R. CHAPMAN, President.

P. TEMPLE, C. V. CLUBB, Secretaries.

TRADE NOTES

We have on hand a few Bingham honey-knives slightly rusty. Price 50 cts. each as long as they last. Postage extra forwarded by mail.

CATALOG OF MAY 1.

As we required an additional supply of catalogs to provide for current inquiries we took occasion to incorporate most of the changes in price which have occurred since Jan. 1, and have dated these May 1 on the title page. The changes in price, some of which are effective this date, and some earlier, are as follows: Advance of 5 cts. per pound on comb foundation, made Feb. 20; zinc honey-boards were advanced 4 cts. per 100; zinc sheets to \$4.00 each; Alexander honey-strainers to \$4.50 each; and gasoline and oil stove marked up 50 cts. each; Town-

send uncapping-box to \$20; also a further advance in comb-foundation mills was made April 1. The following additional advances in honey-extractors and other metal goods are made effective May 1: Two-frame Novice and Cowan extractors are marked up \$1.50 each; four-frame Novice and 72018 Cowan extractors \$2.00 each; four-frame Root automatic are advanced \$4.00 each; the six-frame \$5.00 each, and the eight-frame \$6.00 each. Honey-storage tanks are advanced \$1.00 each, excepting the smallest size, to which 75 cts. is added.

The Cogshall bee-brush has been marked up from 20 cts. to 30.

The prices on tin cans and pails are withdrawn, and we quote no prices beyond what stock we have available to furnish. Our Los Angeles and San Francisco offices are protected till July 1, and are prepared to supply cans in carload lots or less. We are not so fortunate here, and the factories generally have all they can do in taking care of parties with whom they have contracts, and will not accept any new business at any price. We have a limited supply which will care for ordinary requirements for several weeks; but on anything further we shall have to quote on whatever we find available when your inquiry is received. Beekeepers who have not yet bought or contracted for their supply of empty cans for shipping their honey when produced may find great difficulty in getting a supply when needed. We advise you to get in line before it is too late. Some factories have orders to keep them busy for four to six months, running night and day.

BEEWAX MARKET.

We are quoting a further advance of two cents a pound on beeswax, and offer, for prompt shipment, 36 cents cash or 38 in trade, delivered at Medina. We have wax enough to keep us going till June, but need ten to twenty tons for use beyond that date. Freight is very slow, and we advise that shipments be forwarded this month to secure this price. If another raise in price should be necessary to keep in touch with the market we shall, at the same time, be compelled to make another advance in the price of comb foundation. We should like to avoid this if possible.

GLASS JARS FOR HONEY.

Because of the advancing prices of glassware and the increasing difficulty of obtaining various styles at all, we have dropped out of our catalog for 1917 all but the six-ounce tumbler and one-pound round jar which we were able to contract for as needed. We still have in stock at Medina, as well as at our branches, more or less of the styles formerly listed which we shall be pleased to close out at former prices while they last. We give a list here of what we have in stock at Medina, with the price of the same, and will try to give in our next issue a list of stock at our branches. These are bargains at old prices on today's market, and should be taken quickly. They could not be replaced at these prices.

18 cases ½-lb. taper-panel jars, 24 to case, 90c case; 6 for \$5.10; 80c per case for lot.

75 cases 1-lb. taper-panel jars, 24 to case, \$1.10 case; 6 for \$6.30; 95c per case for lot.

30 cases ½-lb. tip-top jars, 24 to case, \$1.00 case; 6 for \$5.70; 90c per case for lot.

42 cases 1-lb. tip-top jars, 24 to case, \$1.10 case; 6 for \$6.30; \$1.00 per case for lot.

8 crates 1-lb. tip-top jars, 144 to crate, \$5.50 per crate; \$5.25 per crate for lot.

39 cases 1-lb. Federal or Simplex jars, 24 to case, \$1.10 per case; 6 for 6.30; \$1.00 per case for lot.

5 cases ½-lb. square jars with cork, 144 to case, \$4.00 per crate; \$3.75 per crate for lot.

7 cases 1-lb. square jars with cork, 72 to case, \$2.50 per crate; \$2.40 per crate for lot.

30 cases 1-lb. square jars with cork, 24 to case, \$1.10 per case; \$1.00 per case for lot.

24 cases ¼-lb. Hersher jars with aluminum cap, 24 to case, at 75c per case; 70c per case for lot.

Some of the one-pound square jars may have glass top with rubber-band and spring-top fasteners, same style as the tip-top jar. These are usually worth 75 cts. a gross more than the jars with cork; but we will supply what we have at regular price with cork.

EIGHT-FRAME DEEP SUPERS NAILED.

We have to offer about 140 eight-frame supers, 5½ inches deep, nailed and painted, which have been used once with shallow extracting-frames. We offer these empty, without frames, at 80 cts. each; or, including frames KD, at 50 cts. each. These prices are much below our regular prices on new goods, and these are practically as good as new, as they bear very few marks of use.

RAUCHFUSS SECTION-PRESS AND FOUNDATION-FAS-TENER.

We have a supply of the latest pattern of this device which has become quite popular thruout the west. It is a combined machine for folding sections and fastening the foundation starter at the same handling. Price, delivered anywhere, \$4.00 each. If shipped with other goods you can have one for \$3.50.

BUCKEYE DOUBLE-WALLED HIVES.

These hives are having a phenomenal sale this season, as our large stock, prepared in anticipation of reaching thru the season, is about gone already. While we do not advertise to furnish these hives in the 8-frame width we have had occasional calls for this size. In anticipation of these calls we have some stock made up which we offer, to close out, at special price. Of the latest style, with loose bottom, we offer 18 crates of 5 each, one-story, with cover, bottom, and frames, at \$12.00 per crate; 5 crates at \$11.00, or the lot at \$10.00 per crate. Of the older style, with tight bottom, we have 7 crates of one hive each at \$2.50 per crate, and 7 crates of five each offered at \$11.00 per crate, or the lot of 42 hives for \$80.00.

HOFFMAN FRAMES WITH 19-INCH MOLDED TOP-BAR.

We have 19 crates, of 100 each, Hoffman frames, with the old-style molded top-bar, 19 inches long, which we offer, to close out, at \$3.00 per 100; \$50.00 for the lot.

CHIPPED TUMBLERS.

We have accumulated about 200 cases of 6 oz. tumblers, slightly chipped, which we offer at 20 cts. a case, including plain tin caps. There are 2 dozen to the case, and they will answer nicely for local use where you do not have to ship.

SECOND-HAND FOUR-FRAME NOVICE EXTRACTOR.

We offer for sale for shipment from Weston, Mich., a four-frame Novice extractor for regular Langstroth size of frames. The machine has had only moderate use, and is in good condition. It was turned in toward a larger machine. A new machine of this size lists now at \$22. We offer this for \$14, subject to previous sales.

SIXTY-POUND CANS FOR HONEY.

Just as we go to press we are closing a contract for five cars of honey-cans. If you have not yet secured or contracted your supply for the season let us hear from you with an estimate of your probable requirements, and get our prices. While we are taking some chance in tying up this quantity, we believe you are taking a bigger chance of not getting what you need if you do not make your plans well in advance of your actual requirements.

SECOND-HAND FOUNDATION-MILLS.

We still have for sale the following second-hand foundation machines which will serve a good purpose for those who want to make up their own foundation. We can submit a sample from any mill to those interested, on application.

No. 0156, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

THE A. I. ROOT CO., Medina, O.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H. H. Root, Medina, Ohio; Business Manager, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows:

A. I. Root, Medina, Ohio; E. R. Root, Medina, Ohio; H. H. Root, Medina, Ohio; A. L. Boyden, Medina, Ohio; L. W. Boyden, Medina, Ohio; J. T. Calvert, Medina, Ohio; Frank Spellman, Medina, Ohio; H. E. Aylard, Gdn., Medina, Ohio; A. A. Bostwick, Seville, Ohio.

There are no bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities.

(Signed) E. R. ROOT, Editor.

Sworn to and subscribed before me this 3d day of April, 1917.

(Signed) FRANK SPELLMAN,

[Seal]

Notary Public.

(My commission expires Feb. 17, 1920.)

A KIND WORD AND ALSO SOMETHING ABOUT DEAF-MUTES.

A. I. Root:—Like others of the GLEANINGS family I feel that I know you, altho I have never met you, and on the strength of that I am going to write and tell you how your Home talk in GLEANINGS for Dec. 15 appealed to me.

My oldest brother, at the age of three years, lost his hearing; and, on account of his slight knowledge of speech, and partial loss of that faculty, he lost it. From that time his bringing-up was a problem for my parents. I learned the deaf alphabet at an early age, and that was the only way we had of communicating with him. He is a printer by trade, and has charge of the makeup stone for one of the largest printing-offices in Minneapolis, and earns \$25 a week.

There are several mutes in town who drive their own cars, and this winter there was dedicated to the use of the mutes of the two cities of St. Paul and Minneapolis a memorial hall midway between the two cities at a cost of \$80,000, a gift of a wealthy mute who died last year, and who made provision for it in his will.

If I am not mistaken, nearly all the storm-sash in the country are hung on hangers invented by Anton Schroeder, also a mute of this city, who also drives his own car.

My brother's wife is also a mute, while both his children hear and speak. The boy married a mute, and has a position as chauffeur for a large wholesale drug house.

Quite a few of the mutes own their own homes; and, while only a few of them are wealthy, still there are none of them but that would resent being called poor, and all of them are self-supporting.

My little girl, six years old, has learned the hand alphabet, and it pleases my brother greatly to have her talk to him.

I will send you a card with the alphabet on; and if you learn it you can surprise your friend in Cleveland by spelling to him on your hands.

I am going to send for several copies of Dec. 15th GLEANINGS, and send them to my mute friends.

I often think of you, and wish I could meet you and have a long talk with you.

My father died last August lacking 18 days of being 76 years old. He would have gone under long ago had he not done as you have often urged in your health talks, by being bright and cheerful, keeping up his nerve, and never complaining, even tho he was far from being well.

H. G. BRANT.

St. Paul, Minn., Jan. 11.

DEAF MUTES; WHAT IS BEING DONE FOR THEM?

Seeing your account of Mr. Neillie and wife, also the running and vibration of the car, etc., I will say John W. Overstreet, of Little Hickman, Jessamine Co., Ky., can play a bassviol. He is a deaf-mute, and was educated at the mute college at Danville,

Ky. I think he would write you an account of *how* he does it if you care to publish it, as it serves to show what a man can do if he tries, and why a lot of us should do better. HANSTON SCOTT.

New Richmond, Ohio, Dec. 21, 1916.

Dear Brother Root:—I just read your sermon in the Oct. 1st issue, and I want to give you one good loud *amen* to that sermon. It does my soul good. Do you remember a few years back a poor "shutin" from nervous prostration wrote you in regard to health, and you sent him T. B. Terry on "How to Keep Well and Live Long;" and you sent a personal reply, and said, "I shall pray for you, and I shall expect results;" and, Brother Root, I am the man. I have prayed and trusted, and followed Terry, and had confidence that you were wrestling with the dear Lord in my behalf till relief or *results* have come, "Praise the Lord." For 32 years I have been a shutin, and suffered all the tortures of a nervous wreck, and all the privation of a shutin life. Well, for the past few weeks I have taken two little trips from home—one about 8 miles, the other about 30 miles; and to say I enjoyed it is putting it mildly.

I am now superintendent of a Sunday-school near my home, and it is doing well. Oh that we had more praying, trusting children of God in the world like yourself! A. A. McMILLAN.

Atlees, Ark., Oct. 7.

TREASURE ON EARTH AND TREASURE IN HEAVEN.

The sample of honey-candy is received, and is certainly very delicious. I wish to thank you for the jar of honey received today. The new-style cover is a great improvement over the old, which I had to cut open with a can-opener. Your honey was our dessert for dinner tonight; and, besides the pleasure of eating it, there was also enjoyment in the thought that a portion of the profits go into the Lord's treasury. You see we feel a bit acquainted with Mr. A. I. Root since references to him and the Airline honey have appeared in the *Sunday School Times*.

Rochester, N. Y., Oct. 14. FLORA L. BUTLER.

EIGHTY-FOUR AND BLIND, LOVES HOME PAPERS.

Dear Sir:—Tho I keep no bees, I have taken GLEANINGS for several years, chiefly for the Home papers, which my mother (nearly 84 years old, and blind almost two years) and I enjoy very much. We also like to read of your southern home and poultry experiments. Wishing you and your good wife "Sue" many more years of happiness and usefulness I am Yours truly,

Portland, Ind., March 19. MISS MYRTLE LOTZ.

"BETTER MEN AND BETTER MORALS."

Every article that pertains to beekeeping is eagerly awaited, for these come from men who know; but I invariably turn to the Home department first. There are many who can help us out in matters pertaining to bee culture, but very few who can present truths that go to the making of better men and morals, as they are presented by the editor of the Home department. JOHN R. LOCKARD.

Enid, Pa.

PATRIOTISM, SOCIALISM, AND THE BIBLE.

May God bless you for what you said in GLEANINGS about "patriotism." We have always said the same, and were called anarchists, etc. You say that Socialists are never happy. Is it any wonder? We never did one evil thing; have always believed just as the Bible teaches; but we are lied about, sworn about, and ridiculed; yet we are never happier than when fighting evil, and, in spite of all, "watch us grow."

Sharpville, Pa., Sept. 7. ROBT. C. ONSTOTT.

"PREPAREDNESS;" A SUGGESTION.

In GLEANINGS for April 1, in Our Homes, the discussion of preparedness interests me. I dislike the idea of war, I believe, as much as any one; but I cannot help thinking of Belgium's unpreparedness and Switzerland's preparedness. In preparedness I do not favor a standing army, like Germany, but an individual and national preparedness like Switzerland—every man at a moment's notice the nation's defense without a military class.

Ialla, Wash., April 13. A. T. COPELAND.

A German-American Friend?

Have you a German friend or neighbor who is a beekeeper?

If you have, do you want to do him a kindness and lend a hand?

We chance to know that there are a good many German beekeepers in this country who would like an American work on bees printed in German, but they don't know where to get it.

We have such a book, "A B C der Bienenzucht," 500 pages, which is a German translation of our A B C and X Y Z of Beekeeping, edition of 1907. There is nothing like it nor equal to it for the German-American beekeeper. We are going to sell what we have left of this German edition at a big sacrifice—at just half price; namely, \$1.00 for the paper-cover edition; \$1.25 for the cloth-bound edition, postpaid. Some of these books are a little shelf-worn, but only a very little. The translation revision was done by Mr. Fried. Greiner, a German, and well-known bee authority. The book may prove invaluable to your German neighbor.

Will You Tell Him?

If you will do so, and if you or he will write us, sending the half-price at which we now offer this book, we will send it postpaid by return mail, and you will have done a service and kindness to a neighbor who is handicapped as you are not. We shall also appreciate your kindness in helping us make these books of service.

The A. I. Root Co., Medina, Ohio

Our New Honey Labels

(Also see last page of this issue)

PURE EXTRACTED HONEY

Net Wt. 1 lb.



This honey was gathered from Raspberry Bloom in Michigan, and is known as the famous Michigan "Raspberry Honey."

Put up at the Apiary of

JOHN S. HIGGINS

R. F. D. 5

FLINT, MICH.

No. 1

NO. 2.—Like No. 1, this label is merely made larger to be used on 5-gallon pails, half-gallon cans, or jars holding more than a quart, such as the Mason 2-quart jar. It can be readily seen from the grocers' shelves, and when used on a jar of good extracted honey will invariably boost the selling price at least ten cents above a like jar of honey without a label. All ungummed.

Prices—Special for 30 days

No. 2 in lots of 100.....	\$1.25
500.....	2.50
1000.....	5.00

Note:—Only the wording printed in black can be changed to suit the customer. Prices include special printing.

For still larger size label of this design, see next page.

NO. 1.—HERE IS A LABEL which will sell your honey. It creates a desire for the clear golden fluid by appealing to man's stomach. It is especially designed for small jars holding about a pound of honey, or for Mason quart jars. All ungummed.

Prices—Special for 30 days:

No. 1, in lots of 100.....	\$1.00
500.....	2.25
1000.....	4.00

Note:—Option may be had on the wording printed in black.

Prices include special printing.

PURE EXTRACTED HONEY

Net Weight 5 lbs.



Buckwheat Honey

Fresh from the Buckwheat Fields of New York State. Try it on Buckwheat Cakes.

Put up by

GEORGE H. DOOWALTER

431 York Rd., Springwater, N. Y.

No. 2

Send Your Order to **THE A. I. ROOT CO., MEDINA, OHIO**, before July 1 for Special Prices.

PURE EXTRACTED HONEY

Net Weight 10 lbs.



From the Apiary of

JOHN J. REYNOLDS

"Fair View Farm"

Producer of

Choice Clover and Alfalfa Honey

Reno, Nevada

Apiaries at
Redding and Farwell, Nev.

Telephone Number
West 7164

No. 3



No. 4

NO. 3. — THIS IS THE largest size of the "Hot Cakes and Honey" label, and is designed for the 10-lb. pail or for the 1-gallon can. Where honey is sold in tin it is most desirable that a neat and appetizing label be used, since the customer can not see the honey as when sold in a glass container.

If you have any difficulty selling your honey in the local market, just try this label. (Ungummed).

Prices—Special for 30 days

No. 3, in lots of 100.....	\$1.00
500.....	3.00
1000.....	5.50

Only the wording printed in black can be changed.

Prices include special printing.

NO. 4 IS A LABEL especially designed for small tumblers or jars of less than a pound capacity. Part of the blue margin is cut off by the die which trims the label. If so desired, this label may be had with white margin, — square edges, instead of the oval. (Ungummed.)

Prices—Special for 30 days

	Oval	Square
In lots of 250...	\$1.50	\$.75
500...	2.50	1.50
1000...	4.50	2.50

The wording can be changed to suit except the line, HONEY.

Prices include other wording.